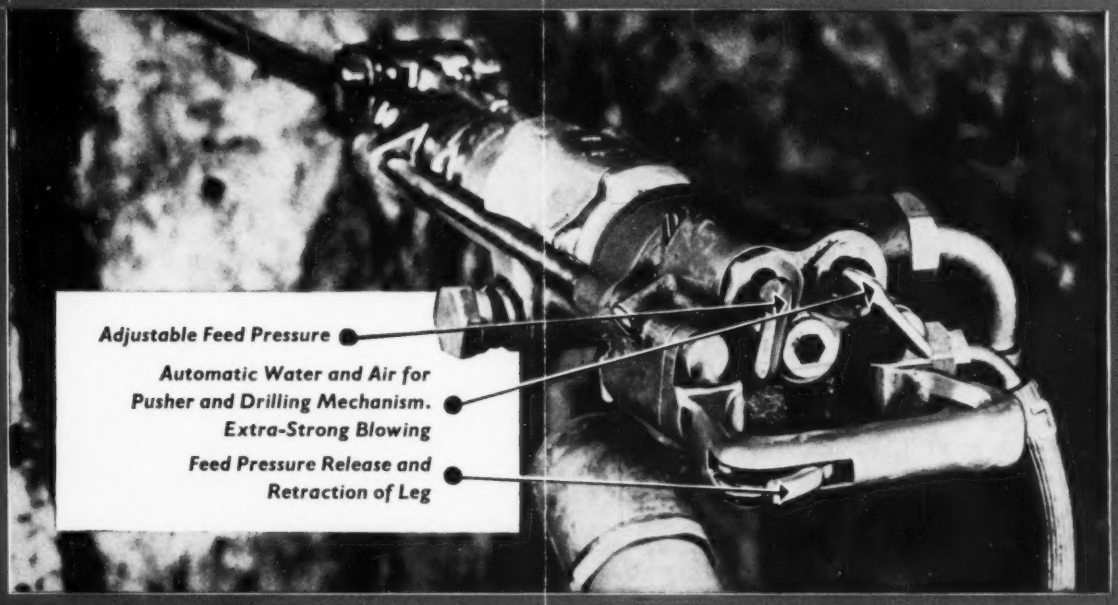
The Mining Journal

LONDON, FEBRUARY 7, 1958

Vol. 250. No. 6390. Price Ninepence


Adjustable Feed Pressure
Automatic Water and Air for Pusher and Drilling Mechanism. Extra-Strong Blowing
Feed Pressure Release and Retraction of Leg

THE NEW ATLAS COPCO LION

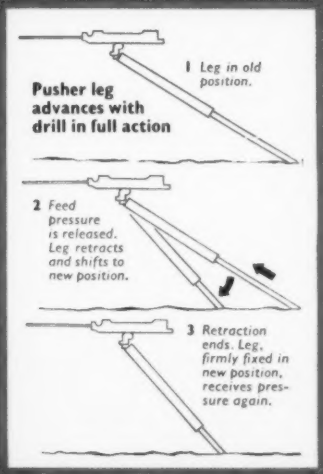
—the most remarkable heavy-duty pusher-leg drill on the market

The LION is the first drill with all operating valves controlled by one hand which never leaves the backhead.

The LION is the first drill with retractable leg which means quicker re-positioning and reduces the number of steels used.

The LION drills 30% faster—even on deep holes—than others of the same weight.

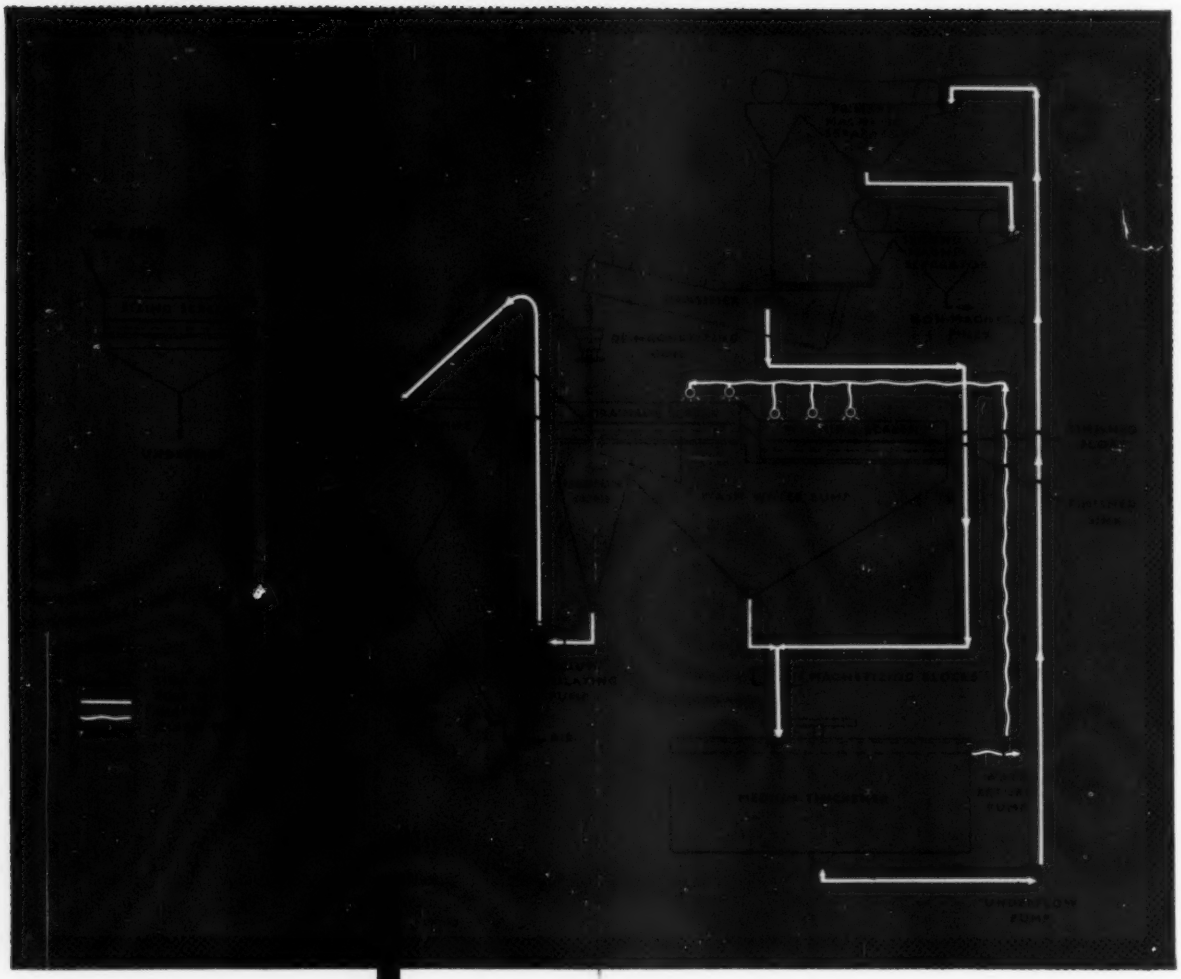
The right steels for the LION are, of course, SANDVIK COROMANT—the most widely used in the world.


Pusher leg advances with drill in full action
1 Leg in old position.
2 Feed pressure is released. Leg retracts and shifts to new position.
3 Retraction ends. Leg, firmly fixed in new position, receives pressure again.

Atlas Copco *Manufacturers of Stationary and Portable Compressors, Rock-Drilling Equipment, Loaders, Pneumatic Tools and Paint-Spraying Equipment*

Atlas Copco AB, Stockholm 1, Sweden, or Atlas Copco (Great Britain) Limited, Beresford Avenue, Wembley, Middlesex

PROFIT BY OUR EXPERIENCE of Heavy Media Separation



Based on the above flow sheet, plants can be supplied in standard units or built to your specific requirements. Capacities from 5 tons per hour upwards.

In addition to reducing labour costs and overheads, the advantages of this Heavy Media Sink-float technique lie in precise separation due to the ability to hold within ±0.01 of optimum any pre-determined specific gravity from 1.25 to 3.40.

The plant will handle feeds containing pieces of several inches in size down to 10 mesh or be ow. The medium, which is recovered by magnetic separation, is subject to very low loss.

Because it will a so treat sub-marginal ore, waste dumps and coarse tailings from past operations, Heavy Media Separation gives you the maximum recovery—profitably.

FRASER & CHALMERS

FRASER & CHALMERS ENGINEERING WORKS, ERITH, KENT

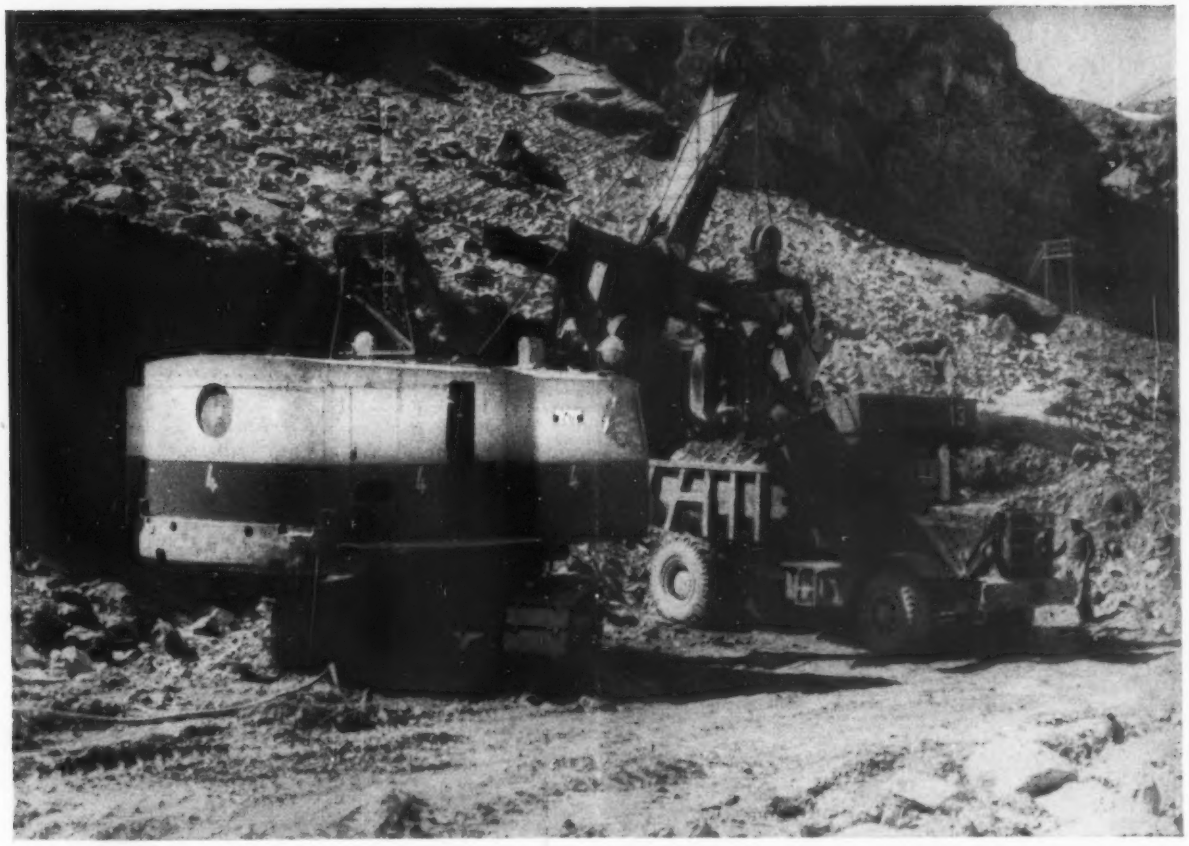
THE GENERAL ELECTRIC COMPANY LIMITED, OF ENGLAND

MG221

In Switzerland and the world over

Bucyrus-Erie excavators are consistently preferred

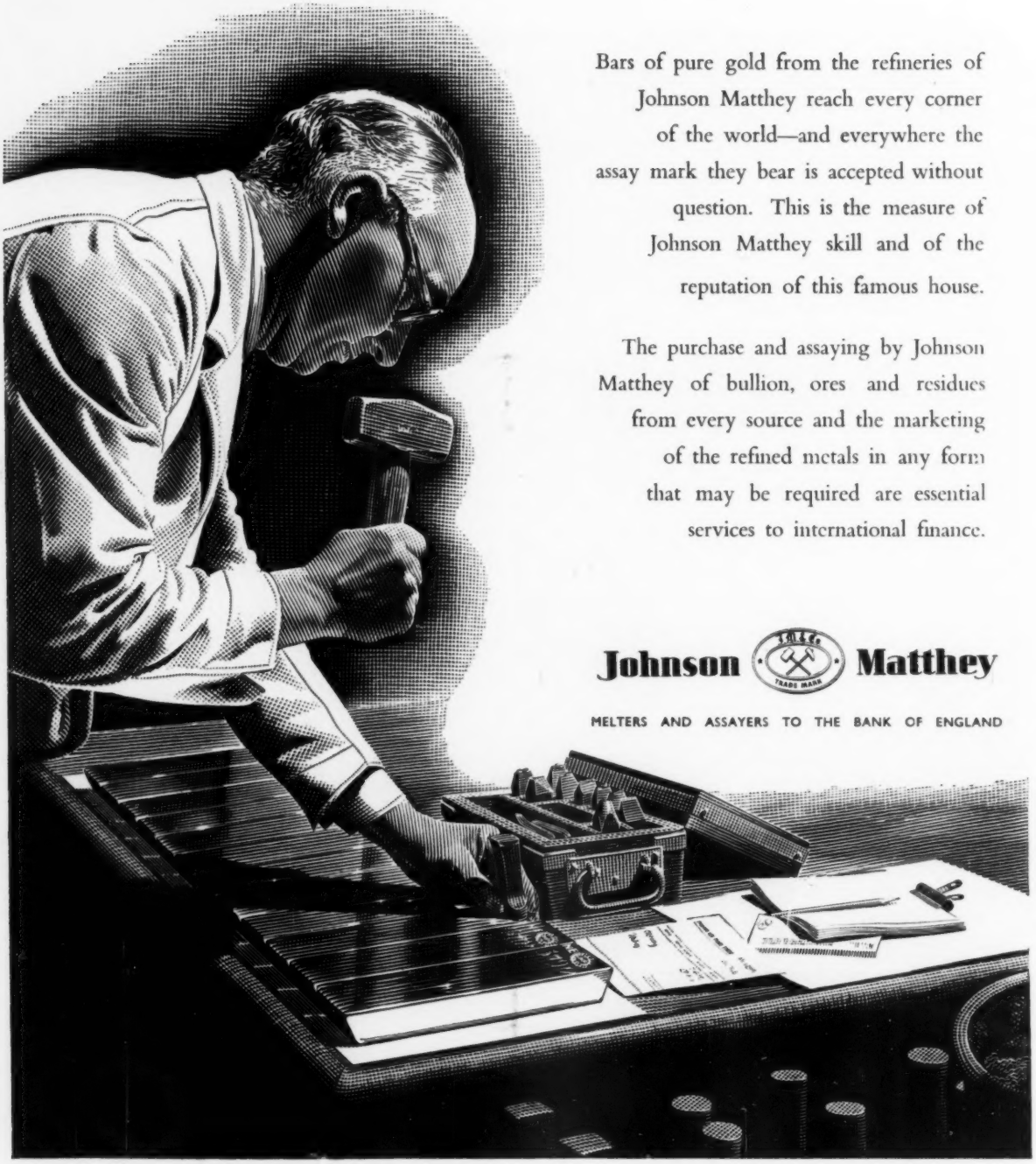
Five 54-B Bucyrus-Erie 2½ cubic yard Ward-Leonard electric shovels loading blasted moraine rock for use on the huge concrete dam at Grande Dixence, Switzerland, nearly 9,000 ft. above sea-level; once more, and in still another country, proving that Bucyrus-Erie excavators are preferred for maximum output and reliability in tough conditions.



BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin, U.S.A.
RUSTON-BUCYRUS LIMITED, LINCOLN, ENGLAND

BUCYRUS ERIE

Accepted throughout the world...



Bars of pure gold from the refineries of Johnson Matthey reach every corner of the world—and everywhere the assay mark they bear is accepted without question. This is the measure of Johnson Matthey skill and of the reputation of this famous house.

The purchase and assaying by Johnson Matthey of bullion, ores and residues from every source and the marketing of the refined metals in any form that may be required are essential services to international finance.

Johnson Matthey

MELTERS AND ASSAYERS TO THE BANK OF ENGLAND

JOHNSON, MATTHEY & CO., LIMITED · HATTON GARDEN · LONDON . E.C.1

Telephone: Holborn 6989

R.I

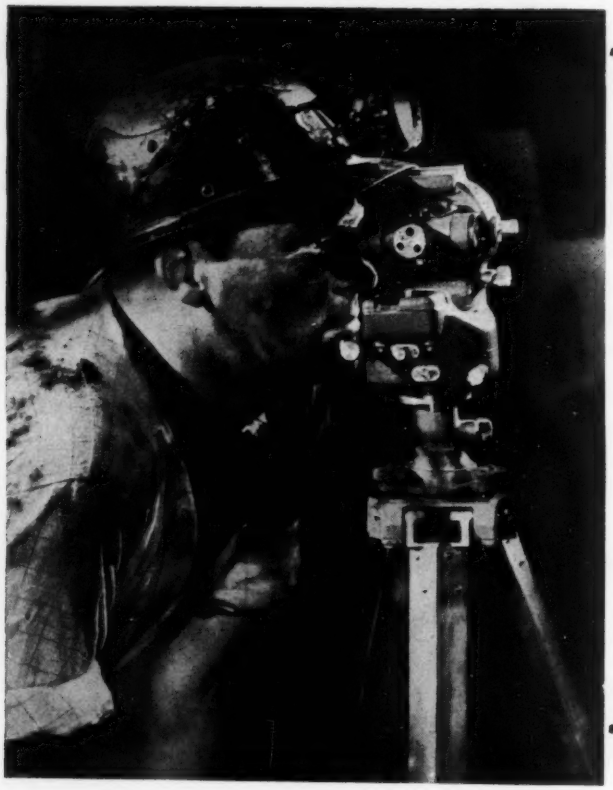
THERE COMES A DAY when even the most trusted machine fails to function — usually, it seems, when the need is most pressing. When that time comes it's reassuring to know that the manufacturer is making every effort to get the machine working again. The Joy-Sullivan Spares and Service Department is stocked out with thousands of consumable items — plus many quite unlikely spares for machines that far outlast their expected life-span. Moreover, the Joy-Sullivan Spares Staff are well aware that every hour a machine stands idle is an hour's lost production — an hour's extra costs. That's why you can rest assured that they will go to extraordinary lengths to see you speedily satisfied.

'OLD FAITHFUL'

ISN'T ALWAYS . . .

JOY · SULLIVAN SPARES SERVICE

JOY-SULLIVAN LTD · Cappielow · Greenock · Scotland
Spares Division: Callywhite Lane, Dronfield, Nr. Sheffield
Export Sales: 7, Harley Street, London W.1



WATTS MICROPTIC
MINING TRANSIT

For elementary surveying below or above ground to an accuracy better than 1:3,000.

This new, simple instrument has glass circles divided at 5 minute intervals and is *easily read to 1 minute.*

Very compact, light and robust.

Please write for List MGJ/82 to

HILGER & WATTS LTD.

98 St. Pancras Way, London, N.W.1

Member of the Export Marketing Company SCIEX

NATIONAL OVERSEAS and GRINDLAYS BANK LIMITED

Consequent upon the Amalgamation of

THE NATIONAL BANK OF INDIA LIMITED and GRINDLAYS BANK LIMITED
(founded 1863) *(founded 1828)*

the business of the combined banks is being carried on from January 1st 1958 in the name of

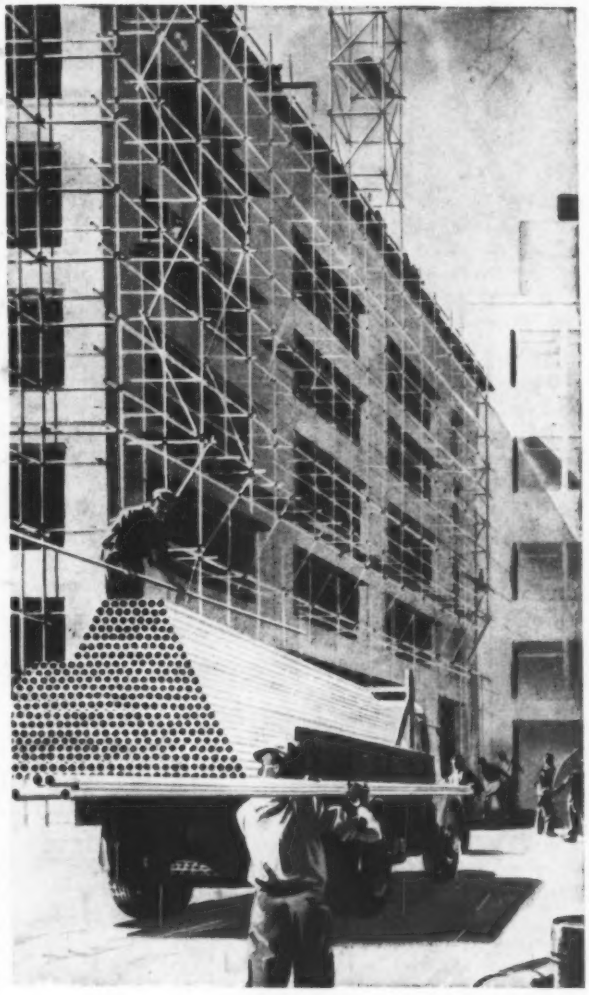
NATIONAL OVERSEAS and GRINDLAYS BANK LIMITED

Head Office: 26, Bishopsgate, London, E.C.2. Telephone: London Wall 4040
London Branches: 54, Parliament Street, S.W.1. Telephone: Whitehall 1462
13, St. James's Square, S.W.1. Telephone: Whitehall 9691
Shipping, Passage and Insurance Departments: 9, Tufton Street, S.W.1. Telephone: Abbey 1771

Branches in: INDIA · PAKISTAN · CEYLON · BURMA · KENYA · TANGANYIKA · ZANZIBAR · UGANDA · ADEN · SOMALILAND PROTECTORATE · NORTHERN AND SOUTHERN RHODESIA

Bankers to the Government in: ADEN · KENYA · UGANDA · ZANZIBAR AND SOMALILAND PROTECTORATE

ALUMINIUM AT WORK



From the familiar . . . . . to the less familiar

Light, strong aluminium ladders are making life easier for painters, builders and workmen everywhere. Not only are they handier to carry and use, but a far sounder investment. Aluminium gives them a rugged durability that will stand up indefinitely to rough treatment and harsh weather. Excellent reasons, these, for using aluminium wherever such qualities count. Aluminium scaffold tubes, for example, can halve erection and dismantling times and cut transport costs by a third. Strong as conventional scaffolding and less than half as heavy, these aluminium tubes are easy to handle and are genuine time savers. No painting or other maintenance is necessary to keep them clean to work with and serviceable. Is aluminium speeding work for you?

Aluminium ingot, produced by Aluminum Company of Canada Ltd., is marketed by Aluminium Union Limited. In addition, the Company exports the products of the various fabricating companies of the Aluminium Limited Group.

Aluminium Union Limited

(Incorporated in Canada)

THE ADELPHI, JOHN ADAM STREET, LONDON, W.C.2.

OFFICES, ASSOCIATED COMPANIES AND AGENTS THROUGHOUT THE WORLD

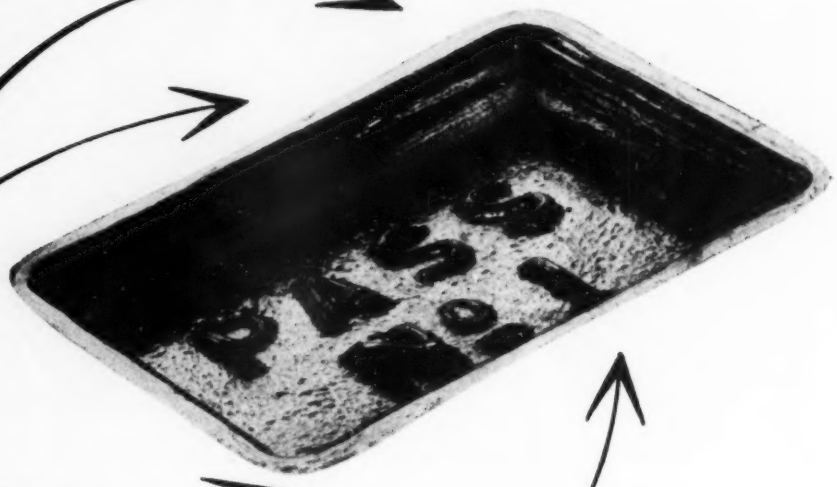
20

An ALUMINIUM LIMITED Company

CAPPER PASS

produce the world's best tin and obtain

maximum extraction from complex ores and residues



Send Samples or Analysis of your material to

CAPPER PASS & SON LTD. NORTH FERRIBY, YORKSHIRE, ENGLAND

The Mining Journal

London, February 7, 1958

In this issue . . .

Japan's Dilemma	151
World-wide Lead-Zinc Drive	152
Brazil Speeds Uranium Search	152
Deep Level Chrome in Rhodesia	152
Malayan Diary	153
The Background of Aluminium	154
Blueprint for Mining Development in Yugoslavia	156
Machinery and Equipment	158
The English Electric Co. Ltd. in 1957	159
Mining Miscellany	160
Metals and Minerals	162
Mining Finance	165
Rand and O.F.S. Returns for January, 1958	166
Company Announcement	169
London Metal and Ore Prices	(iii)

Vol. 250 **No. 6390**

Established 1835

Joint Editors
U. Baliol Scott R. Bruce Dunfield

News Editor A. G. Thomson
Assistant Editor R. Bowran

Display Advertisement Manager
E. S. Hooper

Circulation
Robert Budd

Published each Friday by

THE MINING JOURNAL LTD.

Directors
E. Baliol Scott (*Chairman*) U. Baliol Scott (*Managing*)
G. A. Baliol Scott R. A. Ellefsen

15, WILSON STREET, LONDON, E.C.2

Telegraphic Tutwork London
Telephone MONarch 2567 (3 lines)

Annual Subscription £3 **Single copy ninepence**

Japan's Dilemma

A TRADE recession in the United States, like a fission reaction, is liable to spread very rapidly. The efforts of President Eisenhower's Administration to halt and reverse the downward trend in the American economy are therefore being anxiously watched in all parts of the free world, but perhaps more especially in those countries which derive a large part of their revenue from exports of mining or agricultural products.

Nowhere are the ups and downs of America's economic pendulum being more anxiously studied than in that heavily populated group of islands which constitutes Japan. This industrial and industrious nation is rapidly coming to occupy a position in the economy of the Far East which is by no means dissimilar, though far smaller in scale, to that of the United States itself. Its rapidly expanding metal industries, like those of America, are critically dependent on the importation of raw materials to supplement domestic resources which are limited or even non-existent. As in Washington, so in Tokyo, long-range minerals policy recognizes the wisdom of assuring adequate supplies in the years ahead, when the expansion of world trade and industry will be reflected by growing pressure on available resources of ores and minerals.

In India, Malaya, the Philippines and elsewhere, Japan has been financing searches for base minerals, participating with local interests in the formation of mining companies, and concluding long-term contracts for the ores her smelters need. Such activities are by no means confined to Eastern countries but extend as far afield as Canada and South America. Iron ore, for example, is being imported from both Asia and the Western hemisphere, and over the next seven or ten years imports are to be raised to 16,000,000 tons annually—approximately double the present level. The quest for raw materials has even extended beyond the Iron Curtain, for the Soviet Union is to supply 20,000 tons each of chrome and manganese ore under a trade agreement signed in December last year.

Japanese ore requirements are clearly becoming a factor of increasing significance in world markets and they are unquestionably contributing to the expansion of mine production in a number of countries with limited incomes and resources. But Japan's own economy, in turn, is closely geared to that of the United States which, besides being the largest outlet for various metal products of a specialized nature such as titanium and zirconium, is of critical importance to the Japanese metal industries as a whole, because of its predominant influence on the general trend of prices and demand.

Although the economic setback in the United States is still a very recent development, it has already set off what might be termed a secondary reaction in Japan, the effects of which are in turn being experienced in other Far Eastern countries. Japan—like the United States—is at present confronted with a stark conflict of interests between the short-term and long-term requirements of her metal industries. In Japan's case the problem is perhaps more clearly defined, because it has not been confused by the

existence of strategic and supplemental stockpiles of strategic ores. On the one hand, the temporary surfeit of raw material stocks is reflected by a drastic scaling down of Japanese orders for 1958 shipments of iron ore from Malaya, as a result of which several hundred mine workers at Bukit Besi, Trengganu, are faced with the loss of employment. On the other hand, a Japanese mission is at present in India to examine the possibility of stepping up the supply of Indian iron ore to Japan.

Such apparent inconsistencies in the procurement programme for raw materials are, of course, the consequences of Japan's growing difficulty in disposing of the products of her metal industries at satisfactory prices. Although Japanese steel exporters have cut their prices substantially, export trading has slowed down owing to stiff international competition. Concern is also felt at the growth in stocks of chrome ore due to a sharp decline in domestic requirements for special steel manufacture. On January 20 this year stocks of ore held by the four leading ferro-chrome makers were estimated at between 55,000 and 58,000 tons, in addition to 30,000 tons which will shortly arrive from the Philippines under a long-term contract. In these circumstances the Russian chrome has become something of an embarrassment! The copper industry is restricting output and is planning to freeze part of the surplus stocks on the market through the Japan Copper Metal Co., jointly set up by leading smelters. Copper refineries are reported to be seeking funds from the Bank of Japan to freeze part of their surplus stocks.

Exports of titanium sponge are to be drastically cut, due to the sharp decline in U.S. requirements arising from the reduction in prices of U.S. titanium and by the switch from manned aircraft to guided missiles in the U.S. defence programme.

In this period of economic adversity many manufacturers and traders are calling upon the Japanese Government to take bold measures to promote exports so that growing surplus stocks can be disposed of at economic prices. The government is doubtless only too anxious to assist exporters, but there appears to be little it can do about the present situation, apart from such purely domestic measures as export incentives or tax relief. The remedy is to be sought rather in Washington than in Tokyo and consists basically in the restoration of America's confidence in its own future. In this respect there could probably be no more timely and stimulating tonic than the successful launching of the first U.S. sputnik, whose invigorating influence may soon be felt by Japan's hard-pressed metal exporters in the form of a gradual revival in world demand.

WORLD-WIDE LEAD-ZINC DRIVE

Plans for a new research programme devoted to the interests of the lead and zinc industries were revealed by Mr. J. L. Kimberley, executive vice-president of the American Zinc Institute, in the Institute's annual *Review of the Zinc Industry in the United States during 1957*. The broad programme of expanded research activities will be worldwide and is aimed at the consolidation and expansion of existing markets and the discovery of new ones.

As representative of the zinc industry, the American Zinc Institute declared that extensive plans were now being formulated to sponsor and stimulate both applied and fundamental research. Foreign as well as domestic producers would help to finance and supervise the programme.

The American Zinc Institute estimated that slab zinc consumption figures for 1957 would be 936,000 tons compared with 1,008,790 tons consumed during 1956. This represented a 7 per cent drop. Although zinc consumed by the galvanizing industry dropped from 439,146 tons in 1956 to an estimated 363,000 tons in 1957 (a 17 per cent fall), and brass products used an estimated 112,000 tons of slab zinc in 1957 compared with 124,004 tons in 1956 (a 10 per cent fall), consumption of zinc-base alloys showed an estimated 3 per cent increase. Thus, 1957 estimates for zinc die-casting were 371,000 tons compared with 360,507 tons. This made 1957 the second highest consumption year for zinc base alloys, second only to 1955, when the automotive industry reached an all-time high in the volume of zinc used for die-cast parts. The Institute has pointed out that 1957 was the first year in zinc industry history when consumption of zinc for die-casting exceeded zinc consumed by the galvanizing industry.

The Institute's review predicted that overall consumption of zinc in 1958 should parallel the U.S. level of general industrial activity for the year. It anticipated that consumption during the first half of 1958 would be slightly below that of the latter half of 1957, followed by a balancing increase in activity after June.

BRAZIL SPEEDS URANIUM SEARCH

Two promising occurrences of uranium minerals were discovered in Brazil towards the end of 1957. In October, geologists of the Radioactive Research Institute of Minas Gerais located an autunite deposit of hydrothermal formation in the Serra da Moeda, Belo Vale, Minas Gerais. In Sao Paulo, staffs of the Geographical and Geological Institute discovered another deposit of uranium mineral at Agua da Prata. The ore has an average uranium content of 0.22 to 0.23 per cent.

On December 26 the Brazilian Ambassador signed an agreement in Washington authorizing United States researchers to participate in the search for uranium in Brazil. The President of the Brazilian Atomic Energy Commission has signed a contract with a French consortium to install two plants in Brazil to process uranium ores.

DEEP LEVEL CHROME IN RHODESIA

Great activity is at present being shown along the Great Dyke north of Darwendale, Southern Rhodesia, and many parties are in the field locating chrome claims to cover the deeper level seams hitherto neglected. Interested parties include several of the larger houses who have not been interested in chrome to date.

There are several reasons for a renewal of interest in this area, but the activity is mainly due to far-sighted spade work by the Southern Rhodesia Department of Mines and the Geological Survey. Large-scale maps showing the position in plan and section of the known seams (eleven in number) have been made available, as well as compilations of registration diagrams, to indicate the extent of ground held.

While nearly all the outcrop blocks of metallurgical grade ore are firmly held, little consideration has been given to the mining of " deep level " chrome in the past, though this must become of interest as near-surface workings are exhausted. Though the margins of the dyke are pegged, the centre is largely open, and it is this area that is attracting attention at present.

Other reasons for present activity possibly anticipate large-scale ferrochrome production when Kariba power becomes available at the anticipated figure of less than ½d. per unit. Also, the fact that chrome prices do not fluctuate as wildly as those of many base metals, coupled with the anticipated easy availability of labour, make chrome more attractive. The tonnage potential is tremendous.

Malayan Diary

THE decision by the International Tin Council to restrict the output of tin in the first half of 1958 to approximately 60 per cent of potential world production, has dealt the newly-independent Federation of Malaya a severe blow.

Malaya's permitted exports of tin have been fixed at 10,125 tons for the period December 15, 1957, to March 31, 1958, and 8,625 l.tons for the three months to June 30, 1958; thus the averaged permissible total of exports for the first half of 1958 is 17,140 l.tons. The actual production in 1957 was 59,293 l.tons of tin-in-concentrates, therefore the rate of the cutback for the current half-year is approximately 42.35 per cent of potential production.

With such a drastic cut it is inevitable that the marginal mines will be forced to close down and that short-working will be general in other mines.

The producers are fully aware of the very difficult period ahead, in which many of the mines will only be able to continue operating at a loss, until such time as the restrictions can be relaxed. They are, however, determined that Malaya should stand by its obligations under the International Tin Agreement and to see that its principles are made to work.

One result of the imposition of the quota restrictions is that Chinese tin miners in the Kinta Valley of Perak, Federation of Malaya, have informed the government that they cannot continue to contribute to the cost of the maintenance of the Kinta Valley Home Guard. The cost of maintaining the force is borne as to one-third by the miners receiving protection, and as to two-thirds by the government. The present rate of contribution by the miners is M$6 per picul of tin ore produced.

The miners assert that this charge, added to the M$12 per picul being collected from them by the government, as their contribution to Malaya's share of the first subsequent contribution to the buffer stock, and a reduction by one-third in their permitted output is definitely beyond their ability to bear.

They have decided to appeal to the Defence Minister, Dato Abdul Razak bin Hussein, for the government to assume the full cost of maintaining the force. Refusal by the government will mean the disbandment of the guards, which would create a major problem in providing protection for the Chinese mines in the Kinta Valley.

Tin Production Up

Although the Tin Control Regulations have been enforced throughout the Federation of Malaya since December 15, with the result that the labour force employed in the tin mines had been reduced by 526 by the end of the month, the production in December totalled 118,202 piculs of tin concentrates compared with 111,478 piculs in November, an increase of 6,724 piculs.

The increase was undoubtedly due to miners producing as much tin as they could before January 1, from which date the buffer stock collections at the rate of M$12 per picul of tin concentrates, in respect of the first subsequent contribution, came into effect.

At the end of December, 76 dredges were operating and 597 gravel pump mines, compared with 78 and 589 respectively at the end of November. 36,585 labourers were employed in tin mines and 5,294 in other mining concerns.

The tin-in-concentrates delivered to smelters for the whole of 1957 was 59,733 l.tons, compared with 62,377 l.tons in 1956, and lower than in any year since 1953. The production of tin in 1957 was 3,003 l.tons less than the post-war record figure of 62,296 l.tons in 1956.

European-managed mines produced 33,800 l.tons of tin-in-concentrates, or 57.01 per cent of the aggregate, compared with 36,104 l.tons, or 57.96 per cent in 1956. Production by the Asian section of the industry totalled 25,493 l.tons, or 42.99 per cent, against 26,192 l.tons or 42.04 per cent in the previous year. In this figure is included in 1957, 1,427 tons produced by Dulang washers.

Malaya's permissible export total is apportioned, for the purpose of determining individual quotas, as to 58.66 per cent to European mines, 39.55 per cent to Asian mines and 1.79 per cent to Dulang washers, the basis production for the five-year period 1953-1957.

Export Pattern Changes

A striking change in the export pattern of tin metal shipped by Malaya during 1957 is disclosed by the official figures of primary tin metal exports from the Federation of Malaya and Singapore (excluding movements between those two territories) released on January 9. The total is a drop of 3.6 per cent compared with 1956.

Destinations are shown to have been :—

	1956 l.tons	*1957 l.tons*
United Kingdom	1.983	6,532
U.S.A.	41.084	36.116
Continent of Europe	12.909	6,834
British Possessions	7,631	8.464
Other Countries	9,669	12,658
Total	73.276	70.604

The feature of the table above is the increase in shipments to the United Kingdom and the marked decreases in the exports to the United States and to Continental Europe.

During the first nine months of 1956 the United Kingdom took from Malaya 1,938 l.tons compared with 322 l.tons in the corresponding period of 1957. At one time in October, the Singapore price was so far below the supported London price that by buying in the East and selling to the buffer stock in London a certain profit was assured. This clearly induced the buffer stock manager to enter the Far East market, hence the steep jump in exports to the United Kingdom during the last three months of 1957.

Whilst exports to the United Kingdom were increasing, shipments to Malaya's chief customer, the United States, displayed a rather alarming fall. Although final year-end figures are not yet available, present indications are that U.S. consumption of primary tin and imports of tin metal were each around 56,000 tons, so one might expect stocks in the U.S. at the end of 1957 to be substantially unchanged from a year ago, namely 19,000 tons, equivalent to about four months' supply. Exports from Malaya to the U.S. in 1956, amounted to 41,084 tons, against the total of 36,116 tons last year, as shown in the table. Strong buying by South American countries, particularly Argentina, compensated for the smaller United States demand.

The uneven but diminishing pattern of shipments to Continental Europe is undoubtedly occasioned by purchases from other and nearer sources, including Russian stocks, as they became available.

ALUMINIUM—I

The Background

IF the bauxite deposits in the Australian north are to be developed commensurately with their size, their products, whether they be bauxite, alumina, or aluminium, must enter into international trade. Apart from the many technical problems to be faced (perhaps the greatest of which is a suitable economic power supply if aluminium is to be produced eventually) in projects of this nature, the marketing possibilities are the main deciding factor. It is not the market position of today that is of importance in such long-term projects; their success is dependent on the accurate appraisal of the market position in the future, the timing of commencement of operation, and the competitive position of the projects within the estimated extended field of future world producers.

It may be of interest to review briefly the world position, as the writer sees it, up to, say, 1970. This covers the period when the capacity of existing and known proposed aluminium plants in various parts of the world may be expected to cover the estimated consumption requirements.

World Production

The accompanying graph illustrates the expansion of world production of aluminium, from 250,000 tons in 1935 to 3,250,000 tons in 1956. The abrupt expansion between 1941 and 1944 was of a temporary nature for war purposes. Of real significance has been the steady increase leading to the doubling of production since 1950.

It may be assumed that production of aluminium in the Soviet sphere was fully absorbed within that group of countries. In the Free World, production of aluminium up to 1955 was well within consumption requirements (including some stockpiling), and there was rather a shortage of supply. By 1956, however, production capacity had expanded to the extent that demand was overtaken and a clear surplus had emerged by the end of the year; despite further increases in capacity, production in 1957 will probably be little different from the 1956 figure. The appearance of the present surplus suggests that we are not justified in assuming that future real consumption of primary aluminium will increase at a rate equal to that of production since 1950, that is 240,000 tons per year, some of which went into stockpile.

In recent years the exploration of deposits of bauxite, first on Marchinbar Island and on Gove Peninsula in the Northern Territory, and last year around Weipa on the western side of Cape York Peninsula, has caused a considerable amount of interest in the bauxite possibilities of this northern region of Australia. In the Northern Territory, in areas other than Marchinbar Island and Gove Peninsula, Rio Tinto Australian Exploration Pty. Ltd. have a permit to prospect bauxite deposits at several points along the northern coast of Arnhem Land, Reynolds Pacific Mines Pty. Ltd. (a subsidiary of the American company, Reynolds Metal Co.), have a permit to prospect a wide belt inland from the northern coast, and Aluminium Laboratories Ltd. (of Canada) have a permit to prospect a belt along the western coast of the Gulf of Carpentaria. Both Commonwealth Aluminium Corporation and Aluminium Laboratories Ltd. are prospecting deposits on Cape York Peninsula. This activity has naturally led to thoughts on the eventual development of this region. The article appearing herewith is the first of three condensed from a paper appearing in *The Australian Mineral Industry Quarterly Review*. The author is chief mineral economist, Bureau of Mineral Resources, Geology and Geophysics, Australian Department of National Development. All tonnages quoted in this series are long tons.

Many estimates of future aluminium consumption have been made. Amongst the more authoritative, the Paley Report of 1952 projected the possible increase in Free World demand for aluminium by 1970 to 6,000,000 tons, an average rate of increase of roughly 240,000 tons per year. Mr. Felix Wormser, formerly Assistant Secretary of the U.S. Department of the Interior, recently estimated that by 1975 aluminium usage will be two to three times the present level; this estimate is equal to a rate of increase between the limits 145,000 tons and 290,000 tons annually.

The years 1950-55 covered a period of general high level industrial activity and expansion. During this period other metals were not in over-ample supply and prices of them were high for considerable periods; aluminium thus had a favourable field for competition, in addition to its widening scope in many new usages for which its particular properties are eminently suitable. As the back-log of demand became satisfied, increased usage fell behind increased production; this difference will be adjusted not only by reducing production below capacity but also by absorption of a certain amount of aluminium in the U.S. stockpile. With zinc and copper now back to and below more normal prices, aluminium will meet with stronger competition for certain purposes. Also, output of secondary aluminium, now about 600,000 tons annually in the Free World, may be expected to increase greatly in the future.

Thus, despite the vigorous usage research and marketing programmes of the leading aluminium producers, we must postulate a rate of increase in Free World real consumption of primary aluminium well below 240,000 tons. Mr. Wormser's lower limit of 145,000 tons would seem to be more probable than his upper limit, but, having in mind that the appearance of a surplus in 1957 is to some extent related to a period of rather slackened industrial activity, a rather higher average rate of increase may be justified—of the order of 200,000 tons a year.

Such figures would be greatly increased should aluminium replace another metal in some very large-scale usage—for example, if aluminium were to take the place of steel for motor car engine blocks as has been envisaged. However,

WORLD ALUMINIUM PRODUCTION CAPACITY

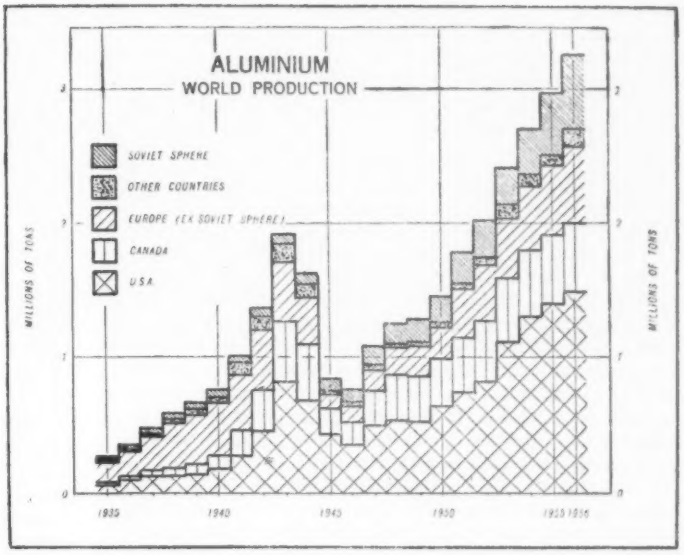
('000 l.tons)

	1957	*1965*	
		Decided Projected Capacity	*Possible Capacity incl. Projects under investigation*
United States	*2,011	2,367	2,458
Canada	720	1,000	1,080
South America ...	12	12	50
Europe	683	830	950
Africa	10	100	100-200+
Asia	88	170	185
Australia	13	13	13
Free World Total	*3,500	4,500	4,800-5,000
Soviet Sphere ...	700	1,250	1,250
WORLD TOTAL	*4,200	5,750	6,000-6,250

* Includes U.S. new capacity early 1958.

Of Aluminium

By
J. A. DUNN



using these approximate limits, the Free World consumption may be estimated at 4,000,000 - 4,500,000 in 1965, and 4,750,000 - 5,500,000 in 1970. Are new aluminium projects likely to meet an increase in demand of this order?

The table opposite includes the capacities of new projects actually under construction and others planned or under consideration. Some of the projects in the United States, Canada and Europe will be completed in the next few months, some by 1960, others certainly by 1965. It is clear that by 1965 the Free World capacity will be at least 4,500,000 tons and probably around 5,000,000 tons, more than adequate to meet the estimated consumption at that time, and suggesting that there will be unused capacity.

Thereafter, further known projects, most of them in a rather indefinite stage, are located in Africa. In addition, new projects in the American region may emerge, and perhaps in Asia (as in Sumatra); they could extend capacity in excess of 5,500,000 tons by 1970. It is not impossible that Soviet aluminium also may compete strongly on Free World markets by that time.

The various proposals for aluminium development in the African region have been reviewed in recent issues of *The Mining Journal*. The West African bauxite deposits are favourably situated with respect to the main consuming regions, North America and Europe, and there is ample power available, as considered at present, for the large-scale reduction of alumina to metal. Extensive bauxite deposits are known in French Guinea (French West Africa), Ghana and Nyasaland, and small deposits in French Cameroons, Rhodesia and Mozambique; at present Portuguese West Africa is being prospected for bauxite.

WORLD BAUXITE RECORDED RESERVES

(000,000 l.tons)

U.S.	40	Ghana	230
Jamaica	500	French West Africa	300
Haiti and Dominican Rep.	23	Nyasaland	60
British Guiana	65	India	250
French Guiana	42	Malaya	10
Surinam	50	Indonesia	25
Brazil	192	Australia	Large
France	60	U.S.S.R.	?
Italy	10	Hungary	250
Greece	60-300	Rumania	20
Turkey	45	China	Several hundred
Yugoslavia	105	Others	20
		WORLD TOTAL	2,500 plus

Any judgment of the extent of aluminium developments in Africa must be highly conjectural within the period we are considering, to 1970. In the meantime, Australian development of the aluminium industry will be proceeding. The production of alumina and its international marketing is an important part of this development. It is, therefore, as well to have some picture of world reserves and production of bauxite and of production of alumina.

Bauxite Reserves

From available data of world bauxite reserves it will be noted that the bulk of the reserves is in the tropical belt, as may be expected from their mode of origin; Australia is the last of the extensive regions within this belt in which bauxite has been found. Some 25 per cent of the reserves listed are located in the neighbourhood of the Caribbean. The reserves quoted should not be accepted as having any precision; from personal knowledge of some of them the writer would remark that the tonnages noted merely give some indication of minimum reserves, and others include lateritic material which may not be acceptable as economic grade bauxite today. Nor should any present-day significance be read into the relative extent of some of them —when individual reserves reach the order of 100,000,000 tons, from the point of view of development there is no particular advantage whether they contain 100,000,000 or 500,000,000 tons; it may be otherwise 30 years hence. That Australian reserves of economically usable bauxite may well exceed 200,000,000 tons has significance in relation to large tonnages in other countries only in so far as their extent may attract large-scale aluminium producers to take an interest in them.

Other countries not listed, but known to contain reserves of bauxite, include Venezuela, Rhodesia, French Cameroons and British North Borneo. Although little is known of bauxite reserves in U.S.S.R., they are believed to be small; certainly there are substantial imports from adjacent countries. Some aluminium production in U.S.S.R. is also apparently now based on other suitable raw materials of which there are ample reserves, such as nepheline and alunite. In China, quite apart from the bauxite deposits, there are immense deposits of alunite, extending to many hundreds of millions of tons. However, it is on the reserves listed in the table that the Free World aluminium industry will develop in the foreseeable future.

They are of variable quality ranging from high-grade, plus 60 per cent Al_2O_3 deposits in Surinam and Saurashta (India) to around 40 per cent Al_2O_3 in U.S. But grade *in situ* has little meaning if the material can be readily beneficiated by simple washing as in Malaya, Indonesia and the Cape York deposits, Queensland.

It is of interest to note that although material in the Northern Territory deposits has the typical physical characteristics of most bauxite, the material *in situ* in the deposits of western Cape York Peninsula, Queensland, is physically different from that of the more important deposits of other countries. Within a flat coastal region of more than 2,000 sq. miles, at an elevation of up to 70 ft. above sea level, widespread zones are covered to an average depth of perhaps 8 ft. by a loose pisolitic laterite gravel (as it is best described) consisting of close-packed pisolites with a small amount of interstitial fine ferruginous sand. With decrease in silica and increase in alumina content of the pisolites, areas of this material grade to a loose pisolitic bauxite gravel, each "pebble" being a separate pisolite of bauxite. The reserves of bauxite material which, after washing, would be acceptable to present-day alumina plants are not finally determined; in addition, material not acceptable today may, as in the case of many other ores, be acceptable in the years ahead.

The principal bauxite-producing country is now Jamaica, where output is expected to increase to 7,000,000-9,000,000 tons by 1960. Of course, not all the bauxite listed is used for the production of aluminium. Considerable tonnages are used annually for the manufacture of alumina abrasives, refractory bricks and cements, and various aluminium salts for dyeing, tanning, water purification and medicines. Of the 1956 Free World total, perhaps 12,000,000 tons were used for aluminium reduction.

Bauxite is a low-priced commodity. For example, British Guiana bauxite is quoted at 50s. 5d. per ton f.o.b. Mackenzie, or 148s. calcined; but bauxites from some localities, of qualities suitable for certain purposes, may be quoted at higher prices. In general, then, freight forms a considerable proportion of cost of ore before treatment, and the tendency is for bauxite to be purchased from the nearest possible source. It may be that some Australian bauxites of special quality, should they prove to be available, may find an oversea market for certain usages, such as abrasives, but these markets would be minor in relation to the scale of bauxite production which the Australian reserves may warrant—nevertheless, in the early stages of development they may prove decidedly attractive, if available.

There is today a considerable volume of world trade in bauxite as the ore for production of alumina and eventual reduction to aluminium. The bulk of this trade is from British Guiana, Surinam and Jamaica, to North America, from the west coast of Africa to Europe and Canada, between European countries, and from Malaya and Indonesia to Japan and Formosa and to Europe. Shipment of bauxite to alumina factories means shipment of 40-50 per cent of valueless water and impurities, and its economics is a matter of overall cost of the finally extractable alumina content (related also to the analysis).

Increasingly, the tendency is for alumina plants to be located close to the bauxite, not only for reasons of shipping freight on bauxite, but also because of understandable national desires to treat raw materials as far as possible within the country of origin. Naturally, any country would prefer to ship alumina at over £30 per ton rather than bauxite at £2 10s. a ton or calcined bauxite at £7 8s. a ton, if it can do so. Even in the Caribbean area an increasing proportion of the bauxite production will be shipped as alumina in the future.

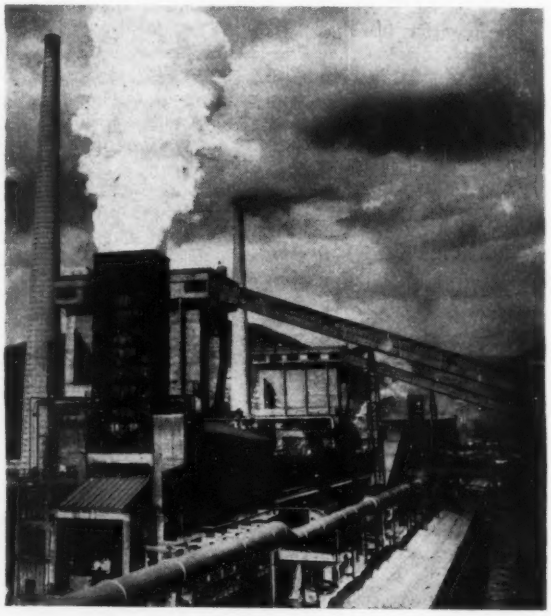
Blueprint for Mining Development in Yugoslavia

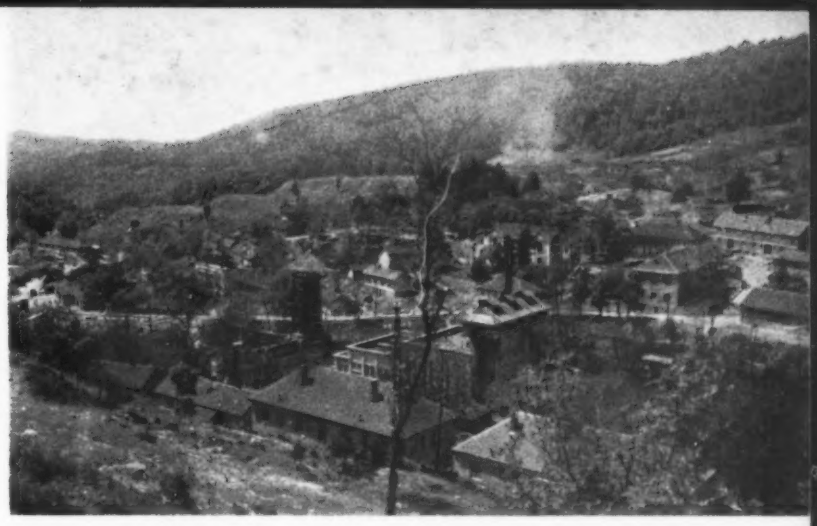
IN December, 1957, the Yugoslav Federal Assembly at its first session, adopted a plan for the development of production in Yugoslavia from 1957 to 1961, based on an expanded output of energy, raw materials and other primary requirements and their rational utilization in industry and agriculture. This programme is expected to give a considerable impetus to the progress of the mining and metallurgical industries, due to more intensive exploitation of the country's raw materials. It has been estimated, for example, that in 1961 production of energy and raw materials should amount in value to 96 milliard dinars compared with 41 milliards in 1953 and 57 milliards in 1956.

Looking further ahead, the progress of atomic power generating will doubtless be reflected by growing emphasis on the mining and processing of raw materials for the nuclear industries.

Developing the Coal Industry

Coal production will continue increasing and it is expected that by 1961 it will reach an annual level of 25,300,000 tonnes, compared with 17,100,000 tonnes in 1956—an increase of 49 per cent. This would be 3½ times greater than the quantity produced in 1939. A particularly big increase is foreseen in the output of lignite, which should rise to 13,100,000 tonnes in 1961 from about 7,500,000 tons in 1956, i.e. by about 77 per cent. Some increase in output,





Alongside: The Senjski Rudnik mine, the largest coal mine in Serbia

Below: An unusual photograph of Zenica, the largest iron works in Yugoslavia

though on a considerably smaller scale, is anticipated for brown coal and pit coal.

In order to achieve the projected development of the coal industry, investment will no doubt tend to be concentrated on the expansion of production at those mines where conditions are favourable for the exploitation of deposits, and which are also favourably situated relative to the chief consuming centres, thus minimizing the strain on communications. The target is an eventual production of 28,000,000 tonnes annually, which the Yugoslav economy will require by 1963. At the same time, the quality of the product will be improved by gasification and by the construction of coal preparation plants.

For the oil industry a period of even greater expansion is foreseen. It is expected that in 1961, production of crude oil will amount to about 850,000 tonnes, compared with 294,000 tonnes in 1956. This would be equivalent to some 800 times the pre-war output. Similarly, the production of natural gas should increase to 350,000,000 cu. m. in 1961 from 68,000,000 cu. m. in 1956. Before the war it amounted only to about 2,500,000 cu. m.

To achieve the projected increases in the production of both crude oil and refinery products, heavy expenditure is foreseen in exploration, in the expansion of refinery capacity, and in the building of pipelines, the aim being complete utilization of the available gas reserves, which should result in the saving of about 1,000,000 tonnes of lignite a year.

In the steel industry also the production of all-important items is to be very greatly increased.

In 1961, the production of iron ore should be in the region of 2,550,000 tonnes, compared with 1,725,000 tonnes in 1956, being thus about 50 per cent higher. As compared with the pre-war level, output will have risen by about 400 per cent. At the end of this period, the production of raw iron would amount to 1,000,000 tonnes, against 630,000 tonnes in 1956, and would be 10 times greater than before the war. Steel production should reach 1,370,000 tonnes in 1961, and would be about six times greater than before the war.

By

BRANKO DJUKIC

Much of the increased output will come from the completion of projects on which work is already proceeding, such as iron works at Skoplje, Macedonia, opening of new mines, partial enrichment of magnetite and haematite ores, re-equipment of rolling mills at the ironworks in Jesenice, Store, Ravne, Smederova, etc.

Outstanding growth of the non-ferrous metal industry is foreseen. Production of copper should reach 40,000 tonnes in 1961, being an increase of 36 per cent over 1956, when 29,400 tonnes were produced, output being thereby restored to the pre-war level.

Production of aluminium in 1961 should amount to 35,000 tonnes, representing an increase of 139 per cent, over the 14,600 tonnes produced in 1956, and will then be about 20 times greater than before the war.

Production of zinc should rise to 32,000 tonnes in 1961 from 19,858 tonnes in 1956, an increase of 62 per cent. In comparison with pre-war output this would represent an increase of over 600 per cent.

It is expected that production of copper, bauxite, quicksilver and mercury ores will be very substantially increased, while the output of chrome ore and refined lead should remain at approximately the current level.

Notable Projects

Among the most notable projects in Yugoslavia are the development of the Majdanpek mine in Serbia (*The Mining Journal*, January 3, 1958, page 8), which will yield 25,000 tonnes of blister copper yearly, and the construction of an aluminium works in Montenegro with a capacity of 50,000 tonnes of primary metal yearly.

The new plan also envisages very large increases in the outputs of non-metals. For example, production of calcined magnesite should rise in 1961 to 80,000 tonnes (62,000 tonnes in 1956); that of fire-clay to 130,000 tonnes (95,000); and of ceramics for buildings to 28,000 tonnes (10,900).

Investment in the non-metal industries will be directed, in the first place, to expanding the production of raw materials from deposits which can be profitably worked, the objectives being to render the industry increasingly independent of imported supplies of clay, asbestos, barytes, feldspar and magnesite, and/or to enable exports to be stepped up. At the same time, the planned increases will help to prevent the necessity for increased importation of these materials as a result of the expansion of other industries, which consume non-metals.

Parallel with all these measures to increase production in the mining and metal industries, steps will also be taken to promote more efficient utilization of plant capacities, to recruit and house tens of thousands of new workers, and to raise standards of productivity.

Machinery and Equipment

Forced Air Circulation in Furnaces

A new forced-air circulation furnace for annealing, solution heat treatment and ageing of aluminium alloy castings, has recently been installed by Royce Electric Furnaces, Ltd., for Cambrian Castings, Ltd.

For the extensive range of light-alloy castings produced by Cambrian Castings, a furnace having an extremely close degree of temperature control and uniformity was essential. The furnace easily passes the very stringent A.I.D. test for light-alloy specification over long cycle periods.

This is one of the standard range of VFC-type furnaces produced by Royce Electric Furnaces, Ltd., in sizes from 10 in. by 10 in. deep to 36 in. by 60 in. deep; it may be used for tempering, preheating or similar heat treatment at temperatures up to 750 deg. C.

To achieve close control and uniformity, high-velocity air circulation is passed over the heating elements housed in a baffled annulus surrounding the work chamber, the heated air passing through the charge on return. Heat is therefore transferred to the charge by forced convection, giving a uniform and rapid heating cycle.

Heating elements are of 80/20 nickel chromium, suspended directly in the air stream and shielded from the work chamber to eliminate direct radiation. Air circulation is produced by a heat-resisting steel, high-velocity centrifugal fan unit mounted in the base of the furnace. The air impeller is specially designed to displace, under all temperature conditions, the maximum volume of air with widely varying conditions of pressure which may be imposed by different types of charge and density of loading. An air-cooled motor with a heat-resisting steel extended spindle gives a trouble-free performance for the combined duty of high speed and elevated temperature.

A RANGE OF CRUSHING ROLLS

The crushing rolls manufactured by Hadfields, Ltd., have been of service to the mining industry throughout the world for many years, and a new pamphlet issued by the manufacturers presents the range in attractive form.

The Style A crushing rolls, fitted with renewable steel shells, are heavy-duty units designed to reduce all types of ores to a product of moderate fineness. These Style A crushers are of the two-roll type, one roll being fixed and the other movable.

The rolls range from 36 in. by 12 in. to 54 in. by 24 in., and speeds from 55-85 r.p.m. to 85-130 r.p.m. Approximate b.h.p. is from 20-30 to 65-80.

The crushing rolls for ballast have cast-steel frames and are gear driven. As in the former units, the roll shells are made of Era manganese steel. The belt-driven rolls for fine products are generally installed for producing a somewhat smaller or finer product than is usual with the geared types of crusher.

The demand for iron ore on a large scale, which marked the five years or so preceding the second world war, led to considerable development in those fields where the ironstone is of a relatively plastic nature. The character of the ironstone rendered it necessary to install crushing machinery of unusual type, and Hadfield Style E rolls were introduced which, while running at high peripheral speed, force the stone through at a tremendous rate. Whilst both roll shells have large-size knobs on their surface, one of the shells has a few rows of teeth of greater dimensions standing proud from the rest, their mission being to apply irresistible force to the incoming masses.

The new furnace by Royce Electric Furnaces Ltd. for light alloy castings

THERMAL DRYERS FOR COAL AND ORES

Heat drying of coal before coking or briquetting has been practised in France for a long time, and briquetted small coal is a standard household fuel. Conreur Ledent et Cie. of Raismes (Nord), a company established in 1859, is the leading French manufacturer of equipment in this field. The Conreur vertical roller dryer is their latest development, and this is now being manufactured in England by Neldco Processes, Ltd.

It is generally accepted that counter current drying, by which the hot gases travel in the opposite direction to the wet feed, is the most efficient method of thermal exchange. The Conreur vertical roller dryer works on this principle.

The dryer itself consists of a steel tower, manufactured in sections and lined with refractory to reduce heat losses. Each section is fitted with two cast-iron rollers, mounted in special heat-resisting bearings and driven from outside the dryer by a continuous sprocket chain. The length of the rollers and number of stages naturally varies according to the duty of the dryer.

In operation, the wet feed is elevated by any suitable means into a hopper at the top of the dryer. From here it is discharged as a thin ribbon over the full width of the first plate inclined towards the first roller. The rollers move in opposite directions so that the curtain of feed falls regularly from roller to roller, finally being collected in the bottom bin and discharged as required.

The hot gases, produced by any suitable furnace using any fuel, enter the dryer at the base and rise through an uninterrupted curtain of feed. This curtain is continuous throughout the dryer and the gases always meet a stream of feed at the same density.

The baffles in the dryer and the general design compel the gases always to follow a route opposite to that of the feed, so that there is always an intimate contact between the whole of the gas and the whole of the feed.

NEW LOCK VALVE

The latest addition to the Dowty range of industrial hydraulic components is a lock valve for use with Dowty "CV" series control valves. Available in a variety of sizes to match the control-valve range, the lock valve isolates a ram or actuator from the hydraulic system and sustains it in the position selected.

Basically, the valve consists of a piston, situated between two spring-loaded poppets. In the neutral position, both poppets are seated, and the valve provides a completely leakproof barrier in the line to the ram or actuator, hydraulically locking the ram. When a selection is made at the control valve, pressure lifts one poppet to allow oil to flow to the ram, and simultaneously moves a piston which lifts the second poppet so as to open the return path.

DEEP ROCK DRILLING

The Halifax Tool Co., Ltd., announce the addition of the Halco-Stenuick Deep Rock Drilling machine Mark III Universal to the range of Mark II machines. Using the down-the-hole principle of drilling, first introduced by them, the manufacturers now claim to have the most versatile primary blast hole drilling machine on the market.

By developing the patented power feed unit first used on the Mark II, counter-balancing to maintain a constant thrust on the drill bit, is done automatically on the Mark III. The same automatic feed control unit also supplies thrust when

The Halco-Stenuick Deep Rock Drilling Machine Mark III Universal

rotary drilling and core drilling. The machine can be used for drilling holes at any angle from vertical to 20 deg. uphill above horizontal by either percussive or rotary methods.

Other features include hydraulic rams for setting up machine to drilling positions, centrally grouped controls, storage position for drill tubes, built-in airline filter and pneumatic tube clamp.

TRAM TIPPLER OPERATING GEAR

A mechanism to provide automatic location of trams in tipplers, and automatic operation of the tippler once the tram is correctly located, has been designed in the Durham Division, N.C.B.

The mechanism consists of two levers mounted centrally between the tram tracks and parallel to them. These levers are so balanced that under the action of gravity they slant upwards towards each other, and their raised ends act as locators for the front axle of the incoming tram.

The lever nearer to the incoming end of the tippler is merely a catch which allows the front axle of the tram to pass over it. The second lever acts as a spring stop and also actuates a striking rod which automatically operates the tippler clutch when the tram is in position. This is done by carrying the fulcrum of the second lever on a vertical member turning about its central point.

A lateral movement of the top end of this vertical member produces a similar movement, in the opposite direction, in its bottom end. This bottom end is attached to a spring-loaded pusher rod which passes back under the tippler floor to the incoming end of the tippler. Here the rod actuates a spring-return plunger switch controlling a pneumatic cylinder which engages the tippler clutch.

When the tippler is inverted, the action of gravity causes the spring-loaded stop lever to assume a horizontal position, and is held in this position by a short lever also actuated by gravity, which swings to support the far end of the stop lever. When the tram is returned to its upright position, it is able to pass on out of the tippler; as it does so its axle engages with a projection on the swing support lever and thus trips the stop to its closed position to arrest the incoming tram.

It is sometimes necessary to pass an occasional tram through the tippler without tipping. This is arranged for by providing a foot-operated linkage which raises the spring stop lever.

HOISTING BY CHAIN

Herbert Morris Ltd. have recently described their lever pull-hoists, electric chain hoists and ball-bearing triple-gear pulley blocks in a series of publications.

These equipments can be visualized as of value in surface installations and in certain instances underground. The pull-hoists in particular are interesting in that they have application in confined spaces.

The English Electric Co. Ltd., in 1957

The main trend of the many contracts received by the English Electric Co., Ltd., during 1957 was the increase in the number of equipments ordered for modernizing existing installations both in this country and overseas. While most of these modernization orders covered the whole of the electrical parts, some were for partial equipments only, to enable the winder to comply with present-day regulations.

Most of the orders placed by the National Coal Board comprised geared a.c. equipments, having orthodox manual control, with ground-mounted single or double drums. Six of the a.c. winders were, however, to be fitted with manual supervisory closed-loop control. The r.m.s. ratings of these six equipments vary between 800 h.p. and 1,800 h.p.

On some of the orders for the National Coal Board—in addition to providing the winder electrical and mechanical equipment as part of the contract—the company was also to supply the main transformer, main switchgear, air compressor and ventilating fan equipment.

Orders for overseas countries included equipments for Canada and South Africa. Typical orders for Canada covered the complete electrical parts for geared Ward-Leonard winders, one for 700 h.p. and another for 450 h.p., each with closed loop control. The larger of these winders is a multi-level skip winder, arranged for push-button automatic control. Included among the orders for South Africa were a 3,000 h.p. twin-motor geared a.c. winder and an 850 h.p. geared a.c. winder. Other contracts covered the addition of dynamic braking to existing winders.

Several winders were commissioned during the year, the most notable of these being the first tower-type multi-rope friction Ward-Leonard skip winder in Great Britain, this being the largest friction winder of any type in this country. The combined rating of the twin winder motors is 3,950 h.p. The second of three 2,000 h.p. 73 r.p.m. single-motor overhung tower-type multi-rope friction winders was also commissioned.

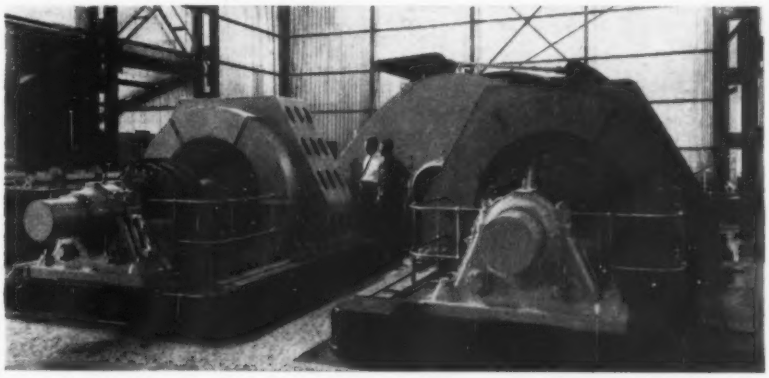
This multi-level cage and counterweight winder is operated by push-button automatic control for both coal and stone winding. Under manual control, the winder is controlled from a desk mounted at pit top, but manual control from the tower is also available. The first winder of this type was commissioned in September, 1956, and the third is in course of installation.

Apart from the two tower-type Ward Leonard multi-rope friction winders commissioned during the year, the first tower-type multi-rope geared a.c. friction winder has been put into commercial service in this country. The r.m.s. rating of the winder motor is 500 h.p.

Among overseas commissionings were a twin-motor 4,040 h.p. geared a.c. winder to Hartebeestfontein G.M. Co., Ltd., South Africa, and a 1,425 h.p. geared a.c. winder in Southern Rhodesia.

The complete electrical parts for the 4,040 h.p. (r.m.s.) 375 r.p.m. 6,600 volts twin-motor geared a.c. winder supplied to Hartebeestfontein were commissioned in 1957. The winder motor stators are permanently connected in series, and the rotors are also permanently connected in series with the twin liquid controllers, both in accordance with the company's patent. This form of connection is the only method by which equal load sharing can be ensured. Dynamic braking is fitted and desk control is provided.

The 4,040 b.h.p. twin-motor winder at Hartebeestfontein. The winder motors are shown



MINING MISCELLANY

Chile has rejected a proposal to export copper to Russia and other Soviet bloc nations.

★

Graphite deposits at Sortland, in Vesteralen, Norway, will be worked from next year. The expected production is 2,300 tons, worth about Kr.2,000,000.

★

Turkey has placed an order with the United States for two coal washeries valued at $2,500,000.

★

A rich deposit of mica has been discovered at Orhaneli (near Bursa), Turkey. Application has been made for its exploitation.

★

The World Bank has approved a loan equivalent to $8,000,000 to assist the Kawasaki Steel Corporation of Japan to increase pig-iron production.

★

High hopes are entertained of a gold strike fifty miles south of Quebec City in Canada. Mr. M. J. Boylen, a Toronto mining man, has staked 75,000 acres in the area.

★

The quantity of mineral products exported from Cyprus during 1957 was slightly higher than in 1956 (1,197,190 tons compared with 1,168,558 tons).

★

Of the 8,500,000 sq. miles of Brazilian territory, some 3,000,000 have so far had no geological exploration of any sort, according to an authoritative source.

★

Sachtlebe A.G., of Meggen, Westphalia, has cancelled a decision to stop recovery of by-product zinc (about 5,000 tons annually) in its sulphur production operations. It is understood that the reversal of the decision is based on purely internal factors and has nothing to do with the situation in the zinc market.

★

Miners of the Baidayevskiye Uklony pit in the Kuznetsk coal basin (Siberia) claim to have established a new world record for tunnelling. Three-shift teams advanced a distance of 154 metres (nearly 168½ yds.) of conveyor strike on January 23, using a PKG-3 combine.

★

Greece has authorized the Belgian firms, Etablissements Bazin and E. Goldstein, of Brussels, to invest some $140,000 in developing a manganese ore deposit in the Phthiotisphokis area and prospecting for further deposits. The two firms will set up a Greek company with a capital of $40,000.

★

The expansion programme initiated in 1955 by the O'Okiep Copper Co. to increase production from its Namaqualand mines to 150,000 tons of ore monthly has been completed. However, due to slackening demand for copper, mine production will be held at 125,000 tons of ore per month, equivalent to 83 per cent of current capacity. O'Okiep is controlled by the United States firms, Newmont Mining and American Metal Climax. It produces blister copper which is exported to Europe and the United States.

★

A number of owners of small copper-processing plants in Turkey have formed a firm called Copper Industry Co., which will have a capital of £T5,000,000. The shareholders plan to set up an electrolytic copper plant in the country, anticipating that it will permit Turkey to save large amounts of foreign currencies at present expended in payment for the processing of blister copper abroad.

★

The U.S. Department of the Interior has urged Congress to ratify, with some changes, an act of the legislature of Hawaii to promote development of that territory's promising bauxite industry. The Department cites preliminary estimates indicating that there might be over 600,000,000 tons of bauxite in Hawaii—over ten times the total of other known U.S. reserves.

★

An agreement has been announced for an exchange of technical information between the Instituto Colombiana de Asuntos Nucleares and Atomic Energy of Canada Ltd. The Compania Minera de Uranio, which hopes to be able to start commercial production of uranium oxide before the middle of 1958, is reported to be spending 500,000 ps. on machinery, which is due to arrive in Colombia early this year. The company hopes to be able to export up to fifty tons of uranium a month for refining in the United States.

★

The U.S. Office of Defence Mobilization (O.D.M.) has been asked to make an early decision on a proposal to grant Pacific Northwest Alloys Inc., of Spokane, a contract to process stockpiles of low-grade domestic chrome. The proposed contract would provide for the processing of about 35,000 tons of ore now in stockpile at various points on the Pacific Coast.

★

Experts of the Brazilian National Department for Mineral Production have finished their work on a lead-bearing area near Buquira, in Bahia State, believed to be the largest lead-ore deposit so far discovered in the country. It is further stated that exploitation will be most economical, since opencast working will be possible. Reports speak of a band of ore varying from 1 to 10 metres in thickness and some 2,000 metres long.

★

The Bureau of Mines, U.S. Department of the Interior, has reported that old tailing piles—reminders of a gold rush in the Tofty area of Central Alaska—contain considerable amounts of tin that some day might prove economical to recover. Inferred reserves of tin total 366 s.tons. In examining the area, Bureau mining engineers found that the placer tin belt was approximately 12 miles long. The character of the placer deposits and other geological evidence strongly suggested a local or nearby bedrock source of the cassiterite and other placer minerals.

★

The Great Whale iron-ore deposits on the mainland of Northern Quebec are to be the subject of a new project jointly owned by Belcher Mining Corporation, Wright-Hargreaves Mines, and Malartic Gold Fields. The deposits are to be acquired by a new jointly owned company, Great Whale Iron Mines, and $300,000 is being provided for the new company to start a 40,000 ft. diamond drilling programme. Major financing in connection with Swedish interests is reported to have reached an advanced stage.

★

Camp Bird Ltd. and Brivan Minerals, of Toronto, Canada, are jointly undertaking airborne prospecting for minerals in North America. Camp Bird has been granted British Treasury permission to spend $300,000 on this work. This joint venture will involve the exclusive use of new miniaturized "Flying Prospector" electro-magnetic-galvanic equipment devised by Mr. Bjarni Bjarnason, technical director of Brivan Minerals.

★

The United States Tariff Commission has outlined the contents of the eight proposed schedules of imports it is in the process of compiling. These schedules, together with one appendix covering temporary tariff measures, would reclassify and replace the fifteen tariff schedules now being used to compute import duties. Schedule 6 includes ore concentrates, flue dust, mattes and speiss, iron and steel and their alloys, in scrap and basic shapes and forms, ferro-alloys, and non-ferrous metals and their alloys in scrap and basic shapes and forms. After the revisions are completed they must be approved by Congress and the President.

★

The State Adviser on Lands and Mines, Kelantan, Inche Hashim bin Mar Dris, said in Khota Bharu, on January 7, that millions of dollars' worth of minerals were lying untapped in Kelantan jungles. He stated that survey reports had disclosed plentiful deposits of tin, gold, iron ore, and manganese. Inche Hashim pointed out that in the past the development of Kelantan had been retarded by communciation difficulties. Mining had been abandoned long ago, because of the lack of transport facilities. The Government plans to offer special concessions to miners to induce them to open up mines in the State. Three hundred applications are in hand from prospectors, of which twelve have been granted. The Kelantan State Government insists that 50 per cent of unskilled labour engaged by miners must be subjects of the Sultan of Kelantan.

★

Eastern Mining and Metals Co., Ltd., which operates Malaya's largest iron ore mine at Bukit Besi, Dungun, Trengganu, has issued notices of termination of employment to 600 of its 2,000 workers. The reason stated is a drastic scaling down of the orders from Japan for 1958 shipments. In consequence, the output of iron ore in this year is anticipated to be around 50 per cent of the 1957 output of approximately 3,000,000 tons. The company is engaged in opening up large iron ore deposits at Ulu Rompin, Pahang, with estimated reserves of 30,000,000 tons. Production was expected to start in 1959 with an annual output of 1,000,000 tons. It would appear that this development of the company's operations will depend on Japan's future ability to finance greater purchases.

PERSONAL

Mr. J. Allan Perham, who has been sales director of the Atlas Copco group for the past two years, has been appointed resident director of the Atlas Copco companies in the United States. Based on New York, he will be responsible primarily for co-ordinating the group's sales programme in the United States. Mr. Erik Johnsson is the new sales director of the Atlas Copco group. He was appointed managing director of Atlas Copco (Great Britain) Ltd. in 1949, when he was responsible for the introduction of "the Swedish method" into the United Kingdom. In 1952 he returned to Stockholm to form the Swedish sales company, Tryckluft-Atlas.

★

The following changes in the boards of companies in the Central Mining-Rand Mines Group have been announced. Mr. T. Reekie has been appointed a director of Blyvooruitzicht Gold Mining Co. Ltd. Mr. F. E. Hay has been appointed chairman of Ferreira Estate Co. Ltd. Mr. R. E. M. Blakeway has been appointed a director of East Rand Proprietary Mines Ltd.; Mr. Hay has resigned from the board. Mr. A. J. Wood has been appointed a director of Consolidated Main Reef Mines and Estate Ltd.; Mr. N. W. S. Lewin has resigned from the board. Mr. Reekie has been appointed chairman and Mr. Wood a director of Welgedacht Exploration Co. Ltd.; Mr. Hay has resigned from the board. Mr. Lewin has been appointed a director of Witbank Colliery Co. Ltd. and Transvaal Consolidated Land and Exploration Co. Ltd.; Mr. Hay has resigned from the boards.

★

Brigadier Henry Gilbertson Smith has been appointed a director of Great Western Ores Ltd.

★

Mr. L. H. Cooper, chairman of the Mond Nickel Co. Ltd. and vice-president of the International Nickel Co. of Canada, Ltd., has been elected a director of International Nickel.

★

Mr. A. J. Wood has joined the board of Modderfontein East Ltd. and has been appointed chairman and managing director. Mr. N. W. S. Lewin has resigned from the board.

★

Mr. M. W. Rush and Mr. K. C. Acutt have joined the board of the Orange Free State Investment Trust Ltd.

★

Mr. M. H. Baillieu has resigned the chairmanship of the board of North Broken Hill Ltd. Mr. M. L. Baillieu, who has been a director since 1932, was elected chairman in his place.

★

Mr. W. D. Wilson has joined the board of Rhodesian Anglo-American Ltd.

★

Mr. K. C. Acutt has joined the board of Rand Selection Corporation Ltd. Mr. G. W. H. Relly has been appointed his alternate.

★

The death has occurred of Mr. H. Hanson, who recently resigned because of ill health from the board of Turner and Newall Ltd., of which he was the deputy chairman.

★

The following dates of forthcoming meetings have been notified by the Institution of Mining Engineers: Manchester Geological and Mining Society, February 13 and March 13; the Midland Counties Institution of Engineers, February 19 and March 19; the Midland Institute of Mining Engineers, March 6 and April 3; the Mining Institute of Scotland, February 19 and March 19; the North of England Institute of Mining and Mechanical Engineers, February 15; the North Staffordshire Institute of Mining Engineers, February 10 and March 10; the South Staffordshire and Warwickshire Institute of Mining Engineers, February 12; the South Wales Institute of Engineers, February 20 and March 20.

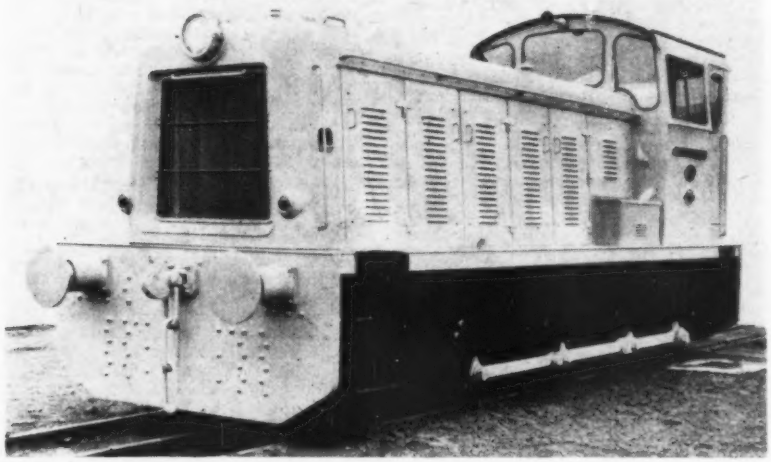
★

A general meeting of the North Staffordshire Institute of Mining Engineers will be held on February 10 at 5.30 p.m.

★

A general meeting of the Cornish Institute of Engineers will be held at the Camborne School of Mines at 7.15 p.m. on February 21.

The first of two diesel locomotives (308 h.p.) ordered by the N.C.B., has been despatched by W. G. Bagnall Ltd. to a colliery in the West Midlands Division. These locomotives, which are capable of hauling over 1,400 tons, weigh 38 tons. They are equipped with a four-speed gearbox and have a fuel capacity of 250 gals.



COMPANY EVENTS

Crompton Parkinson Ltd. has recently formed three new subsidiary companies: Crompton Parkinson (Chelmsford) Ltd., Crompton Parkinson (Doncaster) Ltd., and Crompton Parkinson (Stud Welding) Ltd.

★

A new company has been formed under the name of Rohmetall G.m.b.h., 24 Graf Adolfstrasse, Dusseldorf, to engage in the import and export of non-ferrous metals, scrap metals, residues, ores, etc. This company also represents E. M. Jacob and Co. Ltd., Greenwich House, 10/13 Newgate Street, London, E.C.1, in Western Germany.

★

Caterpillar Tractor Co., Ltd., has moved some of its Sales Department staff from St. James's Street, London, to its office at 1 Newton Place, Glasgow, to bring them into closer contact with its new factory. Orders and inquiries should now be addressed to Sales Department, Caterpillar Tractor Co., Ltd., P.O. Box 162, Glasgow. The new factory, now nearing completion, is on a 65-acre site, and with 13 acres of floor space under one roof will be among the largest single buildings in Britain. Caterpillar will manufacture its first British-built D8 tractors there by mid-1958.

★

Yorkshire Imperial Metals Ltd.—the new company representing the fusion of the copper and alloy tube, fittings and plate activities of the Yorkshire Copper Works Ltd. and of Imperial Chemical Industries Ltd.—has now been formed. Its assets are worth about £18,000,000. The registered office of Yorkshire Imperial Metals Ltd. is at Haigh Park Road, Leeds. The chairman is Dr. James Taylor and the deputy chairman Mr. George P. Norton. Mr. H. F. Sherbourne is managing director. The company's secretary is Mr. P. D. Peel Yates.

★

The Bendix Aviation Corp., U.S.A., has appointed Field Aircraft Services, Ltd., its general sales and servicing representatives in the United Kingdom. Field Aircraft Services is a company within the Hunting-Clan organization, which is owned jointly by the world-wide Hunting Group of shipping, oil and aviation companies. Field's expect that by the end of February their new Radar and Radio Centre at London Airport, currently being completely re-equipped, will become operational.

CONTRACTS AND TENDERS

Overseas Mining and Engineering Equipment Ltd., of London, have received an order from the National Coal Development Corporation (Private) Ltd., of Calcutta, for the supply of three Hunslet Mines Type 70 h.p. diesel locomotives. The order, which is valued at about £22,000, is of particular interest as it is the first of its kind received from the Corporation, which was recently set up in India for the purpose of administering coal activities within the territory.

★

India

Tender No. P/SR-9/Misc/Tin/1-57/5 calls for 1,778¼ cwt. of tin ingots (99 per cent 75 purity minimum) conforming to specification I.S.S. 26/1950. Issuing authority, the Director-General of Supplies and Disposals, Shahjahan Road, New Delhi. Closing date, 18/2/58. B.O.T. ref. ESB2511/58. Telephone inquiries to Chancery 4411, extension 738 or 771.

Metals and Minerals

Overhaul of U.S. Stockpile Policy

The principal recommendations of the Stockpile Advisory Committee appointed by the U.S. Government were reviewed in our last week's issue (*The Mining Journal*, January 31, p. 137). Further details of the committee's report have since become available in London.

One of the points made by the committee was that, since stockpile goals for most materials had been achieved, the secrecy which had always accompanied them should now be lessened. Effect has already been given to this recommendation in a statement to Congress by Mr. Gordon Gray, director of O.D.M. Mr. Gray said that the three-year objective had been met in most of the items and that in the years immediately ahead, so far as the strategic and critical stockpile was concerned, procurements would be confined to a relatively small number of items.

Among the materials still being bought is mica, of which the required grade is supplied by South Africa and India. A purchase programme of U.S.-produced mica has a goal of 25,000 s.tons of hand-cobbed mica to be reached by June 30, 1962, but as of September 30, 1957, only 12,173 tons had been bought. A programme for domestic purchases of beryl is also under way. This has a goal of 4,500 s.tons to be procured by June 30, 1962, but as of last September only 1,581 tons had been bought.

Questioned about tungsten purchases for the stockpile, Mr. Gray said that this metal was not on the active list for purchasing.

The committee recommends that two new stockpile goals should be established for each material and reviewed annually. One would be classified as a "minimum goal". Under the minimum goals enough materials should be acquired both in the U.S. and abroad to fill the three-year basis requirements. Such goals should be attained expeditiously by new procurement or by upgrading existing government inventories when possible. When normal sources are inadequate, supplies should be expanded, preferably in the U.S. or in accessible foreign sources. *As the goal is approached, purchases should be tapered off in an orderly manner to avoid disruption of the usual markets.*

The "minimum goals" would have priority over the others classified as "greater security goals". The latter would improve U.S. security "by avoiding dependence in time of emergency on distant foreign sources of materials". They should be computed for a three-year period, relying only on sources of supply within the general North American area.

It is proposed that the higher goal should be reached on a low priority basis, primarily: (1) by transferring to the stockpile materials resulting from other government programmes, including deliveries under existing forward contracts; (2) by purchasing materials with foreign currencies "accrued incidental to foreign aid programmes"; (3) by obtaining materials in exchange for U.S. agricultural surpluses; (4) by additional purchases under favourable price conditions; (5) by upgrading existing government inventories when feasible.

Quantities of any metals and minerals in excess of defence needs should be acquired in exchange (barter) for agricultural surpluses. However, the Commodity Credit Corporation's request for appropriations to cover such transactions should not be designated as "applicable to defence activities".

It is considered that the director of O.D.M. should have more authority in managing the stockpile and should be able to sell stockpile surpluses without obtaining the express approval of Congress, as now required. Acquisitions and disposals of strategic materials should be carried on to the maximum extent practicable through normal trade channels.

In computing stockpile requirements, the committee recommends that additional provision should be made for major military and atomic energy programmes, as well as for new and increasing uses of high temperature and other special property materials (e.g., titanium, columbium, chromium, molybdenum, etc.) It is pointed out that, up to now, conventional practices have resulted in only relatively small uses of many of these materials, not all of which are on the stockpile list. However, if high-temperature materials become important, not just as minor alloys but as metals or mixtures composed exclusively of the materials themselves, demand could increase sharply. A mechanism should therefore be established to appraise the possible effects of research and development activities on requirements for high-temperature and other special-property materials.

The committee endorses the current concept of providing a higher degree of security in the case of metals and minerals by discounting completely all sources of supplies outside the general North American area. While this concept can scarcely commend itself to producers overseas, it is, of course, in line with existing government policy in determining what U.S. and foreign-produced materials should be bought for the national stockpile.

WOLFRAM BOUNCES

The upward pressure in wolfram ore shipment prices continues and in London quotations per l.ton unit c.i.f. Europe have again reached three figures, a range of from 95s. to 100s. per l.ton unit being currently mentioned, compared with 93s. to 98s. last week. Even at the current level prices are still not much more than a third of those ruling two years ago, when quotations ranged from 272s. to 276s.!

It was to be expected that sooner or later wolfram would reach the floor and bounce, since the price could not go on falling for ever, but the outlook for world trade is still too confused to justify confidence at this stage that the tide has finally turned. A certain amount of demand is reported to be circulating on the Continent and in the U.K., due doubtless to the low level of consumer stocks. This revival has coincided with an almost complete absence of sales from Bolivia, while regular suppliers from other sources are reported to be adopting a stiffer attitude. Moreover, a growing number of mines have been forced to suspend operations owing to the steep fall in prices, with the result that in all probability there is no longer any over-production, though there may still be over-supply.

The latest figures released by the Bureau of Mines, U.S. Department of the Interior, show that in the first three-quarters of last year the U.S. consumed 3,110 s.tons of tungsten, equivalent to an annual level of 4,220 tons, which compares with a total consumption of 4,861 s.tons in 1956. A sharp fall in consumption must have taken place in the last quarter of the year, however, having regard to the lower level of steel production. On September 30, last year, stocks of tungsten products at consumers' plants in the U.S. totalled 494 s.tons compared with 399 s.tons on December 31, 1956. Stocks at plants of producers on September 30 last year amounted to 872 s.tons against 642 s.tons on December 31, 1956.

Bearing in mind that the U.S. is by far the largest importer of tungsten ores, it would appear that in the immediate future only a moderate improvement in prices can be expected. There seems nevertheless some justification for believing that prices are over their worst and that the recent improvement will at least be maintained.

RUSSIA'S TITANIUM INDUSTRY

According to the Department of Mines and Technical Surveys, Canada, Russia probably has a titanium metal and alloy production second only to that of the United States. No published information is available, but there is an estimated production of two to three million tons of ilmenite-magnetite ores annually from north-western Russia and the Urals. This fact, plus the substantial production from Finland, suggests the probability of substantial metal production in Russia. This belief is further supported by the presence of titanium parts in aircraft captured in Korea and in Russian machinery that finds its way outside the Iron Curtain.

Soviet titanium research and production has been surveyed by Dr. John P. Nielsen of New York University, writing in the *Journal of Metals*. According to this survey almost every important metallurgical laboratory has from one to 30 people working on titanium. There is one titanium sponge plant in the Moscow area and there are reported to be two additional plants some distance from the capital. The raw material used is ilmenite slag. Nielsen states that titanium alloys in the U.S.S.R. appear to be about the same as those in the U.S. The Soviets have high-strength alloys and high-

temperature alloys of the aluminium-tin variety.

★

The Bureau of Mines, U.S. Department of the Interior, has released a preliminary report on the titanium industry in 1957. Production of ilmenite in the U.S. is estimated to have increased by 4 per cent, but output of titanium pigments, which use most of the ilmenite, decreased by 6 per cent. Rutile production was slightly lower than in the previous year. In the nine months ending September 30, the U.S. imported 352,488 s.tons of ilmenite concentrates. Imports from India were higher than in any year since 1949, totalling 206,797 s.tons. Ilmenite concentrates imported from Canada, mainly in the form of titanium slag, were 143,412 s.tons.

Rutile imports in Jan.-Sept., 1957, set an all-time record of 66,083 s.tons, which compares with the previous record of 48,906 tons for all 1956. Australia supplied all of this except for 94 tons.

In spite of the cutback in military requirements in the spring, which caused a decline in production and consumption for the remainder of the year, it is estimated that production of titanium metal in 1957 exceeded that for the previous year by at least 20 per cent. On the other hand, sponge consumption was about 20 per cent below that of 1956.

★

Of great potential significance to the economics of the titanium industry is an announcement that a U.S. concern, Hawkridge Metals Corporation, has completed the research and development of a titanium and zirconium scrap reclamation process. The company proposes to licence other firms to use the process on a territorial basis. Hawkridge also reduces virgin titanium and zirconium sponges to powder for general, chemical and powder metallurgical uses.

GROWING URANIUM NEEDS

Indicative of the rising demand for uranium is the new contract signed between the U.K. and Canada, which involves the purchase of between 5,000 and 6,000 tons of uranium metal during 1962-63, the total value being in the region of $105,000,000 (about £37,400,000). This brings the total amount of uranium to be purchased by the U.K. from Canada between March, 1957, and the end of 1963 to between 9,000 and 11,000 tons of metal. Since the requirements of Britain's nuclear power programme are placed at about 7,500 tons of natural uranium fuel, the new contract means that a considerable surplus should be available for the export requirements of the nuclear industry. Moreover, supplies will also be drawn from other Commonwealth producers in South Africa, Australia and elsewhere. Negotiations are currently in progress between the U.K. Atomic Energy Authority and the holder of the uranium mining rights in the Buller district of New Zealand, and it is expected that they will shortly be completed.

★

The National Council of Nuclear Research estimates that 350 tons of uranium will be mined in Italy in 1962. This should be about 30 per cent of the amount required to feed the nuclear power-stations which will have been erected by then. Italy expects to produce 65 tons of uranium in 1960 and 130 tons in 1961. Most of this will come from the Maritime Alps East-Central and from Val Gardena in the Alps. The combined reserves of these two regions are calculated at 183 tonnes certain, 1,250 probable, and 9,150 probable. Other regions considered likely to have uranium include Piedmont, Val d'Aosta, Lombardy, Trent, Alto Adige, Calabria and Sardinia. The Italian Government has signed an agreement under which Italy will buy natural uranium from the U.K. for reactors acquired in Britain or built in Italy to British plans.

★

Scientists of the U.S.S.R. are reported to have discovered a chemical process for the extraction of uranium from sea water, based on the use of organic catalysts. The sea contains about ½ oz. of uranium per 1,000,000 gallons.

ALUMINIUM JOTTINGS

Foreign interests are likely to emerge as majority holders in the projected power dam on the Kouilou River in French Equatorial Africa. This indication follows an agreement between the French Government and the French firms of Péchiney and Ugine, the main consumers of Kouilou power. It is expected that negotiations will now be started with North American and European aluminium, electro-metallurgical and chemical producers to draw up a programme for financing the scheme.

★

Aluminium Francais, the joint selling agency of Péchiney and Ugine, has raised its home market price for basic ingot by 12,000 francs to 210,000 francs per tonne. The price rise, which is authorized to finance the producers' African and metropolitan projects, can be passed on to the prices of processed aluminium.

★

Bonneville Power Administration has advised users that a full interruptible power load of about 480,000 kW. can be restored immediately for the balance of the winter season. However, the aluminium companies are not picking up the additional amount available.

★

American Smelting and Refining Co. expects to start production in the autumn at a new secondary aluminium smelter now under construction at Alton, Illinois. This will be one of the largest plants in the business, adding about 10 per cent to the U.S. industry's capacity. Initial output at Alton will be approximately 2,700 tons of ingot a month.

BORON'S BRIGHT FUTURE

The British-controlled United States Borax and Chemical Corp.—the world's largest producer of boron raw material—has appealed for Government assistance in the form of an increased depletion allowance.

In urging the House Ways and Means Committee to recommend legislation raising this allowance from 15 to 23 per cent, Mr. Horace M. Albright, president of U.S. Borax, emphasized that the importance of boron in the development of the fuels used in space travel had suddenly overshadowed all previous uses of this mineral. While most of the information concerning the present and potential uses of boron for defence purposes was classified, it could be stated that boron was the basic ingredient in the production and future improvement of high-energy fuels for jet aircraft, rockets, guided missiles, and certain atomic applications. Boron had the unusual capacity, said Mr. Albright, of transforming hydrogen into a liquid or solid form which could be used in the propulsion of satellites.

Three oil companies, it was pointed out, are currently marketing a petrol containing a boron additive which provides more efficient engine performance. In the atomic energy field, a ¼ in. layer of plastic and boron used as an atomic reactor shield could absorb neutrons as effectively as many feet of concrete.

It was emphasized to the committee that these rapidly accelerating uses of boron and other derivatives would soon exhaust the deposits already known in the desert area of California. Production of borax—currently in the region of 1,000,000 s.tons a year—has more than tripled in the past ten years, and it is expected that it will be at least doubled during the next decade. More than 90 per cent of the free world production is obtained from deposits located in the United States, and U.S. Borax and Chemical accounts for 70 per cent of the total United States output.

Mr. Albright points out that, for the most part, the orebodies in other countries are not large, and that frequently they are difficult of access and expensive to process. It is believed that there are "considerable" deposits in the Soviet bloc, but the extent of present exploitation is unknown.

CANADIAN ASBESTOS

The Philadelphia journal *Asbestos* estimates that shipments of raw asbestos fibre from Canadian mines during 1957 were slightly higher than in the previous year. The 1958 demand is difficult to anticipate in view of the uncertain economic picture. The journal points out, however, that additional production will obviously come into being during the year; unless business picks up markedly, or additional uses for fibre are developed, an oversupply in most grades would thus appear to be indicated.

MAGNESIUM'S PROSPECTS

Production of primary magnesium in the United States during 1957 is estimated at about 81,000 s.tons, as compared with 68,000 s.tons reported for 1956. On the other hand, shipments of products by the magnesium industry to consuming industries were substantially lower. Since military applications take about 45 per cent of the total amount used, the decreasing level of military aircraft programmes is clearly reflected in last year's decline in consumption. There was also a decline in the level of titanium producing processes using magnesium.

This year the magnesium industry is expected to operate at a lower level of activity than in 1957. However, with an acceleration of programmes, increased production of missiles, and a growing use in civilian applications, an early resumption is predicted of the long-term upward trend.

According to the research department of the Federal Bank of San Francisco, despite the fact that it can be obtained in unlimited amounts at moderate cost, magnesium is still largely dependent for large-scale usage on new technical developments in alloying and fabrication. A

major advantage enjoyed by magnesium is that it is the lightest of all structural metals in common use. Hence the most promising uses are in those fields where lightness offers economic gains. While magnesium has some competition from newer metals, this is generally confined to special uses, where cost is not the major factor. The newer metals are not likely to present any serious threat to magnesium until their cost can be brought down.

BERYLLIUM IN AIRCRAFT

A new opening is presented for beryllium as a result of a contract awarded to Brush Beryllium Co. by the Air Material Command of Dayton for the development of sheet-rolling. It is believed that this will result in a satisfactory air-frame material which would withstand temperatures up to 1,500 deg. F. The basic fabrication may use the powder-metal technique. Besides being light, strong and heat-resistant, beryllium has about the same low density as magnesium and a very high modulus of elasticity. The estimated installed cost of a finished beryllium structure will be approximately $75 to $100 per lb. whereas aluminium is usually costed at $20 to $40 per lb. installed.

NICKEL FOR DEFENCE

The United States Business and Defence Services Administration has taken steps to keep a closer watch on nickel purchases by defence contractors. BDSA allocates nickel to the United States and Canadian holders of defence and atomic energy contracts. It is considered essential that the allocation of nickel for defence orders should be very closely controlled to ensure that the Government is warned should any upturn in military purchases threaten to reduce civilian availability.

MOLYBDENUM AT 2,000 DEG. F.

Molybdenum's claims as a high-temperature material are enhanced by a report that this metal can be utilized at working temperatures exceeding 2,000 deg. F., as a result of a new surface alloying technique. At high temperatures molybdenum forms a volatile oxide which leads to rapid erosion and eventual deterioration. Treatment by the new process involves a diffusion of chromium into the surface which provides a high degree of oxidation resistance.

NEW NICKEL DEPOSITS

The finding of nickel deposits that may well prove to be the largest yet uncovered in the United States has been reported by the Nickel Corporation of America. Pitting operations in Josephine County, Oregon, have established an indicated ore content of about 8,000,000 tons in one of three areas being worked, with a grade of 1.1 per cent nickel or better. The estimate was on ore taken to a depth of 35 ft. on the Eight Dollar Mountain deposit. Potentially valuable ores in this and two other deposits were placed at 35,600,000 tons for a 35 ft. depth.

COPPER · TIN · LEAD · ZINC

(From Our London Metal Exchange Correspondent)

The last week has been one completely devoid of interesting features, apart from the rapid rise and fall in the copper price on Monday and the continued pressure on the fall of the tin price.

MERCURIAL COPPER

The world price structure of copper remains unaltered, with business continuing good on this side of the Atlantic and only just satisfactory in America. The only disturbance was the launching of the first American satellite at the week-end which created a sharp rise in the price on Monday morning in anticipation of a jubilant New York stock market. As, however, this did not materialize, the price fell as sharply as it had risen.

Towards the middle of the week a firmer undertone developed from time to time, but was never sustained enough to make an appreciable alteration in the quotations. The narrowing of the contango is still a subject for discussion, and a number of observers were extremely surprised that the stocks reported on Monday were virtually unchanged from the previous week, as it had been rumoured that substantial tonnages had been shipped to the States.

The excellent state of business in the United Kingdom is underlined by the advance statistics issued by the British Bureau of Non-Ferrous Metals Statistics which show that although December consumption was down against the previous month, the fourth quarter total at 164,300 tons was above the figures for both the second and fourth quarters. Stocks at the end of the year totalled 91,500 tons as against 61,700 tons at the beginning of the year but showed an almost 10 per cent fall over the stocks at the end of the third quarter.

The curtailment of output continues, and this time it is the Japanese copper smelters who are cutting their production by 25 per cent to 8,000 tons a month. This is the second cut in Japanese output, as a 15 per cent cut was made last October.

TIN BACK ON "FLOOR"

The price level of tin has fallen again and the buffer stock manager is once more having to support the cash price at £730 per ton. The three-months' price has been subjected to considerable pressure and a backwardation has been re-established, although most observers feel that this is likely to be short-lived as it is noticeable that the pressure of cash metal is infinitely lighter than it was two weeks ago. It is interesting to note too, that the official stock figures showed a slight fall of 126 tons for the week, the first for some time.

January shipments of tin from the Far East show that out of a total of 1,150 tons shipped from Singapore, only 25 tons were destined for the U.K. and 225 for the U.S.A., the main recipient being Japan with 577 tons. During the same period, shipments from Penang totalled 5,398 tons (against only 3,464 tons in December) and of this total, 1,585 tons were destined for the U.K. and 2,118 to the U.S.A. Europe took 935 tons and India 391.

Now that the Chinese New Year is in sight, it is probable that sales in Singapore will remain fairly constant for the next few days, but that after the week beginning February 17, there may be a scarcity of offerings with a subsequent reflection in the price in Singapore and in London. There are still no indications that American consumers are re-entering the market and sentiment in this country has been affected by the closure of more tin plate mills in South Wales. On Thursday morning the Eastern price was equivalent to £736⅞ per ton c.i.f. Europe.

LEAD-ZINC LITTLE CHANGED

Once again, the lead and zinc markets have been featureless with a slightly weaker undertone in the former and a stronger in the latter, and some people feel that the two prices will come still closer together. In the States the price structure is still shaky and appears to be bolstered solely by the monthly intakes into the stockpile. It is understood that once again the usual monthly requests for offers of both metals have been put out. As mentioned before, most competent observers feel that this operation will cease with the March intake and that by then something will have emerged on the question of increased tariffs.

The British Bureau of Non-Ferrous Metals Statistics figures for zinc issued for the end of December show a similar picture to that given by the copper figures, namely, an increased consumption in the fourth quarter bringing this up to the second best quarter of the year. The figure for the annual consumption is 316,400, compared with 318,500 in 1956, and the stock figure at the end of the year was 44,900 against a figure of 41,300 tons both at the beginning of the year and at the end of the third quarter.

Closing prices and turnovers are:

	Jan. 30		Feb. 6	
	Buyers	*Sellers*	*Buyers*	*Sellers*
COPPER				
Cash	£167	£167¼	£164½	£165
Three months ..	£167¾	£168	£166	£166½
Settlement ..	£167¼		£165	
Week's turnover	9,475 tons		8,400 tons	
LEAD				
Current ½ month	£73½	£74½	£73½	£73¾
Three months ..	£74	£74¼	£73¼	£73½
Week's turnover	5,900 tons		5,275 tons	
TIN				
Cash	£734½	£735	£730	£730½
Three months ..	£735	£735½	£731	£731½
Settlement ..	£735		£730½	
Week's turnover	1,780 tons		1,575 tons	
ZINC				
Current ½ month	£64½	£64½	£65	£65¼
Three months ..	£63½	£64	£64	£64¼
Week's turnover	5,175 tons		7,175 tons	

London Metal and Ore Prices appear on inside back cover.

Mining Finance

Weak Outlook for Platinum Confirmed

At the annual general meeting of Rustenburg Platinum Mines, held in Johannesburg on January 30, Mr. D. A. B. Watson underlined his remarks of January 22 (noted in these columns on January 24) concerning the uncertain trend of demand—present and future—from the oil industry. Indeed, he declared that the reason Rustenburg Platinum Mines increased its capacity to a level which at present is far from fully employed was due to the incorrect assessments of the oil industry's requirements in 1958-1959 and 1960. That this estimate of the oil companies' future requirements has been rendered invalid, was in turn due to the altered assessment by the oil industry itself of the quantity of platinum needed for its own schemes of refinery expansion.

Thus, current estimates of this year's sales have been placed at about 50 per cent of the figure for the previous year. This drastic revision, however, takes into account the fact that pipeline and refined stocks of platinum are excessive in relation to present indicated requirements. While Mr. Watson considers it unlikely that there will be a further reduction in sales, the scale of operations at the mine will have to be reduced. The purpose of these decisions is, therefore, to close the gap between production and sales and reduce the present level of stocks, although because of over-production in the early months of the financial year, there may still be sizeable stocks to be carried over.

The company, as the chairman points out, faces difficult times and consideration has been given to the question of obtaining loans to provide funds until such time as stocks of metal on hand are reduced, or the overall rate of sales increases, or both. The object of the loans would be to meet over a period not exceeding five years the deficit in funds arising in the year to August 31 last. This, together with the balance of capital expenditure during the current year, would amount to about £2,000,000.

In reply to shareholders, Mr. Watson said that serious consideration would be given to the question of issuing reports so that shareholders would not have to wait another twelve months before having a fresh appraisal of the platinum position.

Mr. Watson's statement appears on page 169.

FURTHER GOOD VALUES AT ASHANTI

The January progress report from Ashanti Goldfields indicates that the favourable disclosures at depth previously commented on in these columns, are continuing to come up to expectations. Sampling results in January included values varying from 42 to 50 dwt. per ton over widths of 18 to 22 ft. on the 36th level, and 20 dwt. over 12.7 ft. on the 38th.

Production also continues to advance, and in January Ashanti milled 30,000 tons of 15 dwt. ore for an estimated profit of £105,971, compared with £102,550 in December. Total estimated profits for the first four months of Ashanti's financial year amounted to £423,868 against £410,415 in the same period last year.

MOUNT MORGAN'S DOUBLE TROUBLE

Mount Morgan, a major Queensland gold and copper producer, is at present having the unpleasant experience of seeing its profit margins eaten into at both end simultaneously. The company's announcement that consideration of an interim dividend is to be deferred, therefore, came as no great surprise.

Mount Morgan's difficulties on the revenue side of the balance sheet are, of course, common to all producers of gold and the red metal. However, although nothing can be done with regard to the gold price but to carry on waiting for either Godot or the U.S. Congress to raise it, the Australian Tariff Board investigated the question of assistance to copper producers in June last year. This was followed up by a similar enquiry into the Sulphuric Acid Bounty Act in which Mount Morgan, as a pyrite producer, is also interested. Neither of the reports on the enquiries has yet been published.

Mount Morgan's other problem is the equally widespread one of costs. The Australian Workers' Union has made an application to the Queensland Industrial Court for an increase of a little over £3 for each of the company's 600 employees. Should this be granted, the cost to Mt. Morgan, which just managed to make a profit in the last financial year, will be in the neighbourhood of £A70,000 per annum. It seems that the Queensland company is in for a difficult period, viewed in the light of its falling grades and lower gold output.

HIGH URANIUM VALUES AT PRESIDENT STEYN

The introduction of surface waste sorting at President Steyn has made it possible to stope a limited amount on the Leader Reef, said Mr. S. Spiro at the company's annual meeting. This reef was known to carry high uranium values, but the low gold content compared with the Basal Reef had made it uneconomic. Mr. Spiro revealed that development on the Leader during the first 24 days of January had averaged 575 in. dwt. and 112 in. lb. with 37 per cent payability.

URANIUM TALKS PENDING IN SOUTH AFRICA

A recent report from South Africa states that the South African Minister of Mines, Dr. van Rhijn, has invited the British and American representatives of the Combined Development Agency to come to the Union for talks on its uranium programme.

One item believed to be on the agenda concerns the applications made by several South African producers to extend the capacity of their uranium plant. In this connection it is of interest to recall that Buffelsfontein Gold Mining recently declared its willingness to finance an expansion of its uranium treatment plant without benefit of any loans from the C.D.A., which purchases the South African output.

NO SOUTH SEA BUBBLE

A duty of 1¼ per cent is all the royalty that will be paid by Pacific Island Mines, a new Papuan/Australian company, should its investigations on Misima Island, off Papua, warrant production.

Misima is not new to the mining world. Production of gold from the central portion of the four-mile Umuna lode began as far back as 1888, and in 1940 Cuthbert's New Misima Mines were producing about 40,000 oz. annually from ore grading around 6 dwt. Nevertheless, this flotation will break new ground since earlier miners were concerned only with the precious metal content of the lode, while Pacific Island Mines will prospect the lode for both gold and lead zinc below water table. The ore here, which is in sulphide form as distinct from the oxides at shallower levels, is virtually unexplored.

Initial capital of the new company is £A110,000 in 2s. 6d. shares, of which £A100,000 are to be issued to the public. The chairman is Mr. G. W. Noe, head of a construction company which has done something like £2,000,000 of work in Papua and New Guinea.

RAND AND O.F.S. RETURNS FOR JANUARY

Due to the lower value placed on gold for the purpose of revenue calculations coupled with the seasonal decline in native labour availability, the monthly returns of the South African gold producers showed no striking changes this month, after allowing for the fact that the December figures were adversely affected by the Christmas holiday season.

In the Anglo American group, a further advance in grade was recorded by both of the O.F.S. market favourites, F.S. Geduld and Western Holdings. At F.S.G., the yield per ton improved from 14.2 dwt. in December to almost 14.6 dwt. this time, while Holdings milled 10.6 dwt. ore against 10.4 dwt. in December. In both cases the improvement was coupled with a marginal reduction in costs, resulting in a profit increase for Geduld of almost £20,000 to £320,144 and for Holdings of £6,000 to £361,276. President Brand also reported better earnings at £480,135 (including uranium), but almost all other mines in the group did less well in January than in December, notably Loraine, whose profits dipped from £18,631 to £10,251.

The same picture is apparent in the Gold Fields group, where even West Drie-

fontein, the largest profit-earner of all, could not prevent profits from gold and uranium falling fractionally to £602,344. West Drie's neighbour, Doornfontein, however, managed to report earnings £3,000 higher at £196,055 as a function of lower working costs. Freddies, in the J.C.I. group, earned only £9,521 against £19,953, but this may well be due to the company's declared policy of spending any excess funds on semi-exploratory development. This view is corroborated by the sharp rise in Freddies' costs from 92s. 6d. to 96s. 4d.

For the first time the two uranium producers of the Central Mining group have published their earnings on a monthly basis. With this inclusion, profits at Harmony were £232,923 and at Blyvoor £515,396. Among the mines administered by Anglo-Transvaal, Virginia was benighted by a simultaneous rise in costs (55s. 6d. to 57s. per ton) and drop in grade (5.3 dwt. per ton to 5.1) resulting in a £23,000 reduction in profits from gold and uranium. Costs at Hartebeestfontein were also up, in this case from 64s. per ton to 65s., but the effect on earnings was not so severe since the grade milled was maintained at 11 dwt. Union Corporation's St. Helena was an exception to the general downward trend, results maintaining the steady upward course expected from this mine.

Buffelsfontein and Stilfontein, both in the General Mining group, each reported record earnings coupled with a higher mill grade. Buffels' gold and uranium profits were £7,000 up at £322,252 backed by a yield of 6.63 dwt. per ton, against 6.61 dwt. in December, while a rise of 0.1 dwt. per ton at Stilfontein contributed to the lifting of profits from £455,031 in December to £464,186 in January. Results at West Rand Consolidated, in the same group, were seriously affected by the fire which destroyed the north extractor house on December 30.

Rand & Orange Free State Returns for January

Company	January 1958 Tons (000)	Yield (oz.)	Profit† (£000)	Year ends	Current Financial Year Total to date Tons (000)	Yield (oz.)	Profit† (£000)	Last Financial Year Total to date Tons (000)	Yield (oz.)	Profit† (£000)
Goldfields										
Doornfontein	86	35,733	184·4	J	600	247,377	1393·9	528	209,926	980·9
Libanon	103	23,093	53·2	J	809	160,858	372·7	678	151,909	382·7
Luipaards Vlei	70	12,633	4·7	J	510	91,011	55·5	575	103,248	69·4
Rietfontein	23	5,354	15·0	D	23	5,354	15·0	26	5,700	15·7
Robinson	73	15,640	7·3	D	73	15,640	7·3	72	14,584	4·3
Simmer & Jack	—	—	—	D	—	—	—	96	17,402	16·8
Sub Nigel	66	16,609	28·8	J	462	117,549	199·6	464	132,456	356·8
Venterspost	115	28,406	50·0	J	850	205,392	391·8	867	196,098	468·1
Vlakfontein	48	17,067	81·7	D	48	17,067	81·7	48	17,095	82·9
Vogels	96	21,914	46·7	D	96	21,914	851·8	100	23,500	60·5
West Drie	75	72,370	583·5	J	525	503,832	4220·5	525	491,097	4042·7
Anglo American										
Brakpan	125	18,147	11·5	D	125	18,147	11·5	109	18,585	16·6
Daggas	217	46,000	236·8	D	217	46,000	236·8	200	45,801	259·4
East Daggas	90	15,000	27·6	D	90	15,000	27·6	94	15,558	35·5
F.S. Geduld	64	46,308	320·1	S	254	180,641	1243·1	33	10,801	20·2
Loraine	63	12,030	L19·7	S	247	48,175	L57·9	242	46,295	L30·5
President Brand	72	54,208	437·1	S	279	210,822	1688·9	241	185,109	1525·9
President Steyn	93	35,594	190·2	S	370	175,449	860·6	353	137,530	805·4
S.A. Lands	86	17,750	50·2	D	86	17,750	50·2	85	18,801	65·2
Springs	126	14,180	9·0	D	126	14,180	9·0	125	14,625	7·5
Vaal Reefs	68	30,365	177·2	D	68	30,365	177·2	55	23,432	133·6
Welkom	80	23,965	65·1	S	322	95,363	254·9	342	84,601	182·8
Western Holdings	94	49,650	361·3	S	387	199,917	1456·7	352	158,033	1011·1
West. Reef Ex.	109	25,344	57·5	D	109	25,344	57·5	120	25,817	59·4
Central Mining										
Blyvoor	101	56,380	373·1	J	720	426,488	3031·2	737	414,768	3028·2
City Deep	148	28,048	10·1	D	148	28,048	10·1	158	30,868	18·6
Cons. M.R.	137	21,905	11·0	J	1,157	159,313	68·4	1,154	161,130	64·4
Crown	231	35,604	17·2	D	231	35,604	17·2	265	38,448	L8·4
D. Roodepoort	185	33,136	52·5	D	185	33,136	52·5	188	32,884	56·6
East Rand Prop.	225	57,021	151·6	D	225	57,021	151·6	211	55,595	167·7
Harmony	76	31,161	137·2	J	571	228,906	1138·7	544	211,993	1116·6
Modder East	138	13,936	2·3	J	966	97,454	20·4	979	100,793	58·2
Rose Deep	56	7·8	3·2	D	56	7·8	3·2	49	7,623	0·2
J.C.I.*										
E. Champ d'Or	12	285	L28·2	D	12	285	L28·2	12	350	L26·3
Freddies Cons.	45	15,684	L17·5	D	45	15,684	L17·5	56	13,757	L28·5
Govt. G.M.A.	65	11,392	1·3	D	65	11,392	1·3	152	24,140	L11·3
Randfontein	179	4,097	5·1	D	179	4,097	5·1	83	13,922	28·2
Union										
East Geduld	127	39,053	266·7	D	127	39,053	266·7	140	43,226	302·8
Geduld Prop.	86	13,620	11·4	D	86	13,620	11·4	107	16,943	26·8
Grootvlei	195	41,544	211·5	D	195	41,544	211·5	197	42,163	220·9
Marievale	73	19,166	84·4	D	73	19,166	84·4	72	18,896	84·4
St. Helena	118	34,696	186·7	D	118	34,696	186·7	120	34,791	190·4
Van Dyk	77	13,592	20·2	D	77	13,592	20·2	80	13,172	2·8
General Mining										
Buffelsfontein	106	35,172	178·3	J	770	251,374	1342·3	80	21,000	60·3
Ellaton	32	7,294	38·0	D	32	7,294	38·0	32	6,750	15·3
S. Roodepoort	31	7,234	26·6	J	208	48,822	177·9	204	47,583	174·5
Stilfontein	108	53,662	375·2	D	108	53,662	375·2	91	38,669	241·5
W. Rand Cons.	107	187,779	L27·9	D	107	187,779	L27·9	140	19,452	5·8
Anglo-Transvaal										
Hartebeestfontein	84	46,200	310·4	J	599	328,615	2220·1	600	247,578	1491·7
N. Klerksdorp	9	868	L9·3	D	9	868	L9·3	10	1,229	L5·2
Rand Leases	160	24,280	2·2	J	1,210	183,781	63·4	1,093	169,506	L181·0
Village M.R.	32	5,307	7·9	J	231	37,504	38·2	234	36,691	60·3
Virginia O.F.S.	98	25,970	46·2	J	710	172,188	445·7	636	135,980	394·6
Others										
N. Kleinfontein	94	11,540	0·5	D	94	11,540	0·5	100	11,312	L12·6
Wit Nigel	18	4,304	6·3	J	125	29,846	32·1	126	27,939	55·8

Gold has been valued at 248s. 4d. (December 248s. 9d.) per oz. fine. L indicates loss. †Working Profit. *Working Profit includes sundry revenue. Table excludes profits from Uranium, Pyrite and Acid, and also production from Uranium divisions at Luipaards Vlei, Randfontein and W. Rand Consolidated. Results of Simmer and Jack were mutilated in transmission, and will be announced later.

MARKET HIGHLIGHTS

The main event in a rather uncertain Gold share market during the week to February 5 was the good news from the Free State Geduld annual meeting. The high development values announced at F.S.G. were disclosed only 14 days after the relatively mediocre results announced in the December quarterly report. They coincided with the few remaining days for appplications for F.S.G. new shares at 80s. F.S.G. old shares quickly rose to 79s. 4½d., but the premium on the then nil paid new shares quietly disappeared on speculative selling in front of the 80s. payment date. In their fully paid form, the new shares hardened to 80s. 7½d. at one time but later drifted back to 78s. 1½d., the old easing to 77s. 6d. At the President Steyn meeting, high uranium development values were announced on the Leader Reef and the shares subsequently rose to 27s. 9d.

News of the big new U.K. - Canadian uranium contract prompted more hopeful views of the long-term outlook for uranium producers generally. Firmest spot in this section was Randfontein where Continental buyers, finding little stock available, pushed the price up to 26s. Canadian mines moved ahead, then eased back before gaining ground. Algom rose to $30.

The December monthly returns proved to be rather unexciting, partly on account of the poor gold price received for that month. One or two useful increases in earnings were reported, however, among them St. Helena (they rose to 37s. 6d.) and Buffels (35s. 6d.). Otherwise, Western Holdings rose for a while to 88s. 9d., largely as a result of switching operations from Vaal Reefs (37s.). Free State Saaiplaas (11s. 9d.) weakened on fears that new money will be called for soon.

Diamonds fluctuated narrowly, while after a fresh setback earlier, Platinums later recovered well. In West African Golds, Ashanti rose to 13s. 6d. on the latest high development values found at depth. Mount Morgan, in Australians, fell 6d. to their lowest for many years (7s.) as a further reflection of the passed interim dividend.

Although business in Base-metal shares remained painfully small, there was a slightly firmer trend in prices. This was largely a reflection of Wall Street which in turn was spurred on by the successful launching of the first U.S. satellite.

A certain amount of re-investment support came in for Copper shares, most of it based on the assumption that the metal price has at last grounded. Bancroft made one or two attempts to rally but failed to get very much above 12s. Chartered, however, were a consistently firm market, rising to 48s.

In Lead-zincs, Consolidated Zinc improved to 48s. 6d. San Francisco held at 20s. 3d. despite the directors' statement with the preliminary figures announcing that operations at the mine are barely profitable at present.

Thin trading conditions also characterized Tin shares which were inclined to harden here and there. Ayer Hitam moved up to 21s. and a little more interest in Beralt (27s. 6d.) resulted from the recent improvement in wolfram prices. Elsewhere, Consolidated Murchison picked up to 25s. for no particular reason apart from the theory that the recent fall had been overdone.

FINANCIAL NEWS AND RESULTS IN BRIEF

Kampong Kamunting's Lease.—Kampong Kamunting Tin Dredging anticipate that a decision will be made in the near future on their application for a mining lease over a new area in Kedah.

Wankie Coal Cheaper. — Average Southern Rhodesian coal prices were reduced by 11d. per ton as from January 1. The pit-head price is now 18s. per ton on average.

Camp Bird Mining.—Camp Bird Mining has been registered as a private company with a capital of £10,000 to administer the mining interests of the Camp Bird group in Colorado.

Tekka-Taiping Sells Some Ground.—Tekka-Taiping announce that it has been agreed to dispose of the mining lease of part of the company's mining area not considered economically workable by its own dredge for £40,000, subject to completion of contract.

Business as Usual at W.R.C.—West Rand Consolidated announce that normal crushing operations at the north reduction plant, which were interrupted as a result of the fire which took place on December 30, 1957, were resumed on January 22, 1958.

The cost of replacement of the building and contents, and any loss of profits, are fully covered by insurance.

Consolidated Zinc to Manage Siscoe.—Consolidated Zinc has acquired a substantial interest in Siscoe Mines and is to assume management of the company's operations, according to a statement by Mr. J. B. Lynch, president of Siscoe. Siscoe is interested in silver, cobalt, vermiculite, oil and gas in various parts of Canada.

Emperor Mines.—Operating profit of Emperor Gold Mining Co. in the year ended June 19 last showed a sharp reduction to £890 from the previous year's £24,838 (both Fijian currency). The fall is largely accounted for by a considerable increase in development footage accomplished during the year, resulting in a net increase in ore reserves of 15,000 tons.

Cassiar Break Record.—An increase of 21 per cent in fibre sales pushed net profits of Cassiar Asbestos in the year ended September 30 last to a new record level of $2,811,295. This is equivalent of 73.9 c. per share, compared with 58.5 c. last year. The company expects 1958 sales to repeat last year's level. Turner and Newall hold an indirect interest in Cassiar.

British Tin Investment.—Owing to complications arising from the O.T.C. provisions introduced in the last Finance Act, British Tin Investment Corporation have announced that completion of the accounts for the year ended December 31, 1957, has been temporarily deferred. The declaration of a further dividend in respect of that year, which would normally have been made on January 8 has now been postponed until February 12, but the dividend will be paid as usual towards the end of March.

Tati's Coal Options.—Tati Goldfields has signed an agreement with a leading mining house in South Africa as a result of which Tati will be refunded all costs and expenses in obtaining the farms in the Utrecht district over which it has coal options, plus option money already paid. The properties will be drilled and proved and if a company is formed to work the ground Tati will receive royalties on coal sold.

Tati is to have 10 per cent subscription rights and 10 per cent underwriting rights in any company formed to mine the area.

Lonrho Mines Do Well in 1957.—The decreasing copper price draws attention to the steady gold production in Southern Rhodesia, largely controlled by the London and Rhodesian Mining and Land Co. Ltd. Final figures of production from their mines in 1957 are (in f.oz.):

Cam and Motor Mine: 97,877; Pickstone Mine: 14,705; Arcturus Mine: 17,753; Muriel Mine: 21,346 and 311.5 tons copper; Mazoe Mine: 10,294.

The particularly healthy development results at the Arcturus property, noted in *Mining Journal Annual Review, 1956*, was followed up by installation of new plant, now milling 7,000 tons monthly.

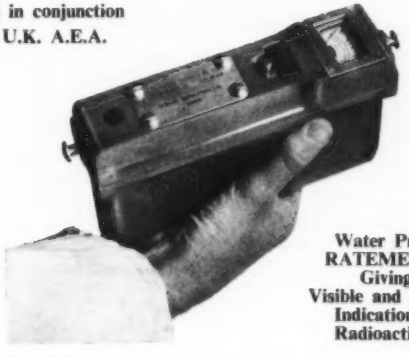
The run of mine ore is arsenical, and in the past, grinding to 75 per cent—200 mesh, flotation and roasting the concentrates before cyanidation comprised the flow sheet. As a result of successful tests carried out on grinding the total ore in cyanide solution, plus finer grinding (over 95 per cent—200 mesh), the current rate of extraction has been stepped up to 86 per cent, and the flotation and roaster plants have been discarded.

"GR"

"THE RED BOX"

GEOLOGICAL SURVEY UNIT

Designed in conjunction with U.K. A.E.A.



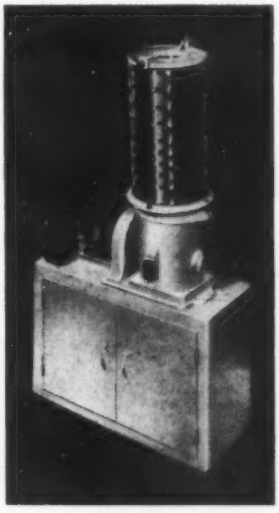
Water Proof RATEMETER Giving Visible and Audible Indication of Radioactivity

Stabilised Transistor Circuits
Standard Batteries : Long Life
Total Weight: 3 lb.

For details apply:

GENERAL RADIOLOGICAL LIMITED

15-18 CLIPSTONE STREET, GREAT PORTLAND STREET, LONDON, W.1



accurate particle size analysis

Simply vibrating or shaking test sieves by hand is not enough for an accurate sieve analysis of the particle size range of a material. Vibration alone tends to aggregate rather than segregate particles, and shaking test sieves by hand is tedious and obviously inefficient. The Inclyno Test Sieve Shaker, with a double movement that gyrates and jolts the test material around the entire surface area of the mesh of each test sieve, ensures perfect segregation of the various particle sizes in the shortest possible time.

The Inclyno Test Sieve Shaker is an essential unit for all laboratories and is standard equipment for sieve analyses in many government laboratories, nationalised industries and industry in general.

Operated by fractional h.p. motor and supplied complete with automatic time switch covering test periods up to 60 minutes. Three models available for all sizes of standard test sieves.

INCLYNO

TEST SIEVE SHAKER

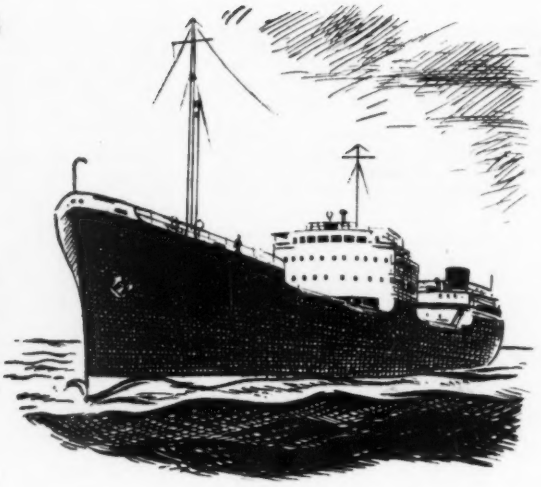
Write or telephone Crawley 25166 for List IN 2902

THE PASCALL ENGINEERING CO LTD
GATWICK ROAD . CRAWLEY . SUSSEX

MARKETING:

ORES · MINERALS

IRON CHROME
MANGANESE
MANGANESE DIOXIDE
MICACEOUS HEMATITE
ILMENITE RUTILE
ZIRCON ETC



FERGUSSON WILD
& CO LTD

SHIPPING:

BROKERS CHARTERERS

15 ST. HELEN'S PLACE · LONDON · EC3

Cables: FERGUSONIA LONDON · Telex No: GB LN 28801 · Telephone: LONDON WALL 7022 (8 lines)

INCREASE MAN-HOUR EFFICIENCY UNDERGROUND

WITH **SPIRATUBE**

— Pressure or Exhaust Systems —

Keep workers fit and fresh with a constant flow of clean, invigorating air. No need for unwieldy permanent ducting. Use Spiratube. It can be installed quickly and easily. Economical too . . . because Spiratube can be used many times. Just unhook it from the traveller wire. Retract it into manageable lengths. ***(It's light enough to carry.*)*** Move it to the new site. Hang it — and efficient ventilation is immediately ready. Send to-day for an illustrated technical brochure about this most versatile ducting, with a hundred applications in industry.

** Spiratotes - simple carrying frames - are built for the job. One man can handle 50 feet of 18" ducting easily.*

FLEXIBLE DUCTING LIMITED

89, SHUNA STREET, MARYHILL, GLASGOW. N.W.

Telephone: MARyhill 3729. *Telegrams:* FLEXIDUCT, GLASGOW. N.W.

An associate company of George MacLellan & Co. Ltd., Established 1870.

POTGIETERSRUST PLATINUMS LIMITED
UNION PLATINUM MINING COMPANY LIMITED
WATERVAL (RUSTENBURG) PLATINUM MINING COMPANY, LIMITED

(Each Incorporated in the Union of South Africa)

The Boards of Directors of the above-named companies draw attention to a statement made by the Chairman of Rustenburg Platinum Mines Limited at the annual general meeting of that company held at Johannesburg on Thursday, January 30, 1958.

A copy of the statement which is supplementary to the statement issued to members on January 22, 1958, is published below.

Johannesburg.
January 30, 1958.

RUSTENBURG PLATINUM MINES LIMITED

(Incorporated in the Union of South Africa)

Supplemental statement to members by the Chairman, Mr. D. A. B. Watson, at the annual general meeting held at Johannesburg on Thursday, January 30, 1958.

It may be helpful to members if I take this opportunity of adding some comments further to those made in my recent statement which was prepared on January 5 and issued to members on January 22.

Demand :

The demand from industrial users, other than from oil companies, appears to be reasonably steady, and I expect that the gradual increase in industrial consumption which has taken place during recent years will continue. Sales to the jewellery trade are not of great significance to the general situation in which the present reduced demand arises almost entirely from the changed requirements of the oil industry.

Whereas in 1956 and during the first half of 1957 the oil industry's requirements for platinum could not be satisfied, the position has now completely altered and orders have been materially reduced.

Platinum is used in the oil industry for the manufacture of high octane fuel, which the modern automobile requires for its best performance. An examination of the current position indicates with reasonable certainty that world demand for, and the production of, high octane fuel will continue to increase. This is particularly the case in Europe, where the building of refineries is proceeding rapidly and where the installation of the platinum catalyst reforming process used to produce high octane fuels is proceeding at an even faster rate.

Although it is not possible to be dogmatic about the emergence of any new process in future years, there is no evidence at the present time of any process for the production of high octane fuel which will supersede that using a platinum catalyst and it appears reasonably certain that this catalyst will continue to be used by the oil industry. There has, however, within the last year been a considerable reduction in the installed weight of platinum per barrel capacity of the reforming plants. This has resulted both from a reduction in the quantity of platinum used in some catalysts and also from the fact that, as has been the case in many new processes, techniques have improved, with a resultant longer life of the catalyst employed. These developments are of very recent origin.

It appears possible that a demand may well arise for even higher octane ratings than those now produced. Whether the production of such fuel would entail an increase in the percentage of platinum is not yet known. There is at present therefore considerable uncertainty as to the quantity of platinum which may be required in the future to produce a given quantity and quality of fuel.

When a few years ago it became clear that the platinum catalyst reforming process was the best, technically and economically, for the production of high octane automobile fuel, the various oil companies took steps to obtain their estimated requirements from any source available to protect themselves against shortages of this catalyst and to ensure their ability to meet competition in the supply of high octane fuel. Considerable quantities of platinum were bought at that time on the basis of the higher rate of platinum required per barrel of reforming capacity.

As a result of the subsequent reduction in this rate of usage these quantities proved, however, to be considerably in excess of requirements and certain oil refining companies, which up to six months ago were buyers, now hold stocks sufficient for their immediate needs. Buying by some refineries is continuing but in general it has been drastically curtailed and is likely to remain so until stocks are depleted.

During the years 1955 and 1956 and the early part of 1957 when there was an acute shortage of platinum, the quantities offered by Russia were considerably in excess of the amounts normally made available from that source. It is difficult to obtain accurate figures but sales during those years were materially above the level of sales in 1953 and 1954 while there has in all probability been a falling off in 1957. I cannot say what relationship exists between the quantities actually supplied by Russia during the last three years and the amount annually produced by that country, as it is not known to what extent previously accumulated stocks were disposed of during that period. Offerings from Canadian producers have remained reasonably constant over recent years and it is considered unlikely that they will vary significantly during the next few years.

Rustenburg :

It may well be asked why, in the face of the possibility of over-supply of platinum, Rustenburg increased its capacity to a level which at present is far from fully employed.

The answer lies in the incorrect assessment in respect of the years 1958, 1959 and 1960 of the requirements of the oil industry. It was, however, as recently as only ten months ago that Rustenburg was arranging for the supply of platinum to cover requirements during those years.

In my opinion, present world requirements for platinum could not have been satisfied solely by the joint production of International Nickel and Rustenburg Platinum Mines on the basis of the capacity of the latter prior to the 1955/56 expansion scheme. Users of platinum in industry would have been dependent on supplies being available from Russia. To a company such as Rustenburg Platinum Mines the fortunes of which are dependent on the growth of the use of platinum in industry, this would have been an undesirable situation subjecting the platinum market to the danger of periodical shortages and famine prices which have been a characteristic of this market in past years. In my opinion, the decision to proceed with the 1955/56 scheme was correct, not only in the light of the estimates made at the time the decision was taken, but also in the light of present facts.

The further expansion known as the 1956/57 scheme has proved to have been unnecessary to meet present demands. Had the requirements of the oil industry continued at the levels indicated by the usage in 1956 and the beginning of 1957, these requirements might well have employed the full capacity of Rustenburg during the years 1958, 1959 and 1960. During that period it was expected that the cost of the scheme would have been recouped, that an adequate return would have been earned on the new investment, that the market would have been stabilised and that in about 1960, when demand was expected to slacken, your company would have been in a position to utilise what might then have been spare capacity for the purpose of taking advantage of future markets. As a result of the altered assessment by the oil companies of their requirements, Rustenburg has been faced several years earlier than was expected with a reduced demand and simultaneously with the necessity to meet the balance of the cost of the expansion scheme.

Future Action :

The position is being dealt with as follows :

Pipeline and refined stocks of platinum are excessive in relation to present indicated market requirements and production is being curtailed to levels which will ultimately result in a reduction in these stocks and a release of the funds represented by this reduction in quantity.

Curtailment of operations of necessity takes some time, and, furthermore, the successive cuts in production which have recently been made have in each case proved to be insufficient because of subsequent reductions in the estimates of sales on which the cuts were based. Members have been informed that present estimates place the level of sales for the current year at about 50 per cent of the figure for the previous financial year. I consider it unlikely that there will be a further reduction in this estimate. In order to align production to this level of sales, a further reduction in the scale of operations will be made and will become effective during February and March. As part of the present programme, milling at the Union Section will be reduced to negligible proportions. Because of the 1956 and 1957 expansions to the capacity of the Rustenburg Mine, increases in the demand for platinum over and above present levels can for some time be more economically met by again expanding the rate of milling at that mine rather than at the Union Section. The Rustenburg Section could, if so desired, produce sufficient platinum to meet sales at the 1957 level without recourse to the facilities at the Union Section. It is unlikely that this Section will be required to supply any significant quantities of platinum in the near future and, in order to avoid deterioration, certain items of equipment installed underground at the Union Section will therefore be removed and either utilised at Rustenburg or sold.

The gap between production and sales is therefore being closed and during the balance of the year it may be possible to reduce the present level of stocks, although the overall increase for the year may still be considerable as a result of over-production in the early months of the financial year.

Consideration has been given to the question of obtaining loans to provide funds until such time as stocks of metals on hand are reduced, or the overall rate of sales increases, or both. The objective in mind is to meet over a period to be determined by future events, but not to exceed five years, the deficit in funds which arose during the financial year ended August 31, 1957, which, together with the balance of capital expenditure during the current year, will amount to about £2M. Such an arrangement, which is being actively explored, would afford some relief to the extent of the appropriations necessary from current profits pending the realisation of some of the funds tied up in stocks.

This company faces difficult times at the present moment and it has been necessary to plan its policy in such a way as best to meet the circumstances which have so rapidly and materially changed over the past six months. These circumstances have resulted in hardships to employees and to shareholders and to the districts in which the two mines are situated, but the line of action which is being followed is unfortunately unavoidable.

REQUIRED: OPPORTUNITY TO PROSPECT in any part of the Tropics. Experienced diamond and churn driller, bush work preferred, age 30, seven years' mining and prospecting (alluvial and lode) experience. Available for interview on or after January 28, 1958. Box No. 615, *The Mining Journal, Ltd.*, 15 Wilson Street, Moorgate, London, E.C.2.

The Proprietors of British Patent No. 718352 for "IMPROVEMENTS IN OR RELATING TO BARS FOR SUPPORTING MINE ROOFS OR THE LIKE", desire to enter into negotiations with a firm or firms for the sale of the patent or for the grant of licences thereunder. Further particulars may be obtained from Marks and Clerk, 57 and 58 Lincoln's Inn Fields, London, W.C.2.

MINE SURVEYOR required for Base Metal Mine in KENYA; should be about 30 and mining school-trained, preferably with overseas experience. Tours of 30 months with 5 months' paid leave. Married accommodation with basic furnishings and services. Starting salary £1,200 p.a. Superannuation Fund. Good climate, sporting and social facilities. Apply, giving age and full particulars, to Personnel Officer, Colonial Development Corporation, 33 Hill Street, London, W.1, quoting Serial 325.

MINE ELECTRICAL ENGINEER. A large Mining Company operating in Upper Burma, climate sub-tropical and healthy, has a vacancy for a MINE ELECTRICAL ENGINEER. Applicants must have experience of maintenance of Mine electrical installation, both on surface and underground. Four years' agreement; six months' paid leave of which three months normally permitted after two years; contributory Provident Fund; free passage; partly furnished quarters and medical attention. Commencing salary and allowances aggregate K.1,325 (£99 7s. 6d.) per month, rising to K.1,475 (£110 12s. 6d.) in fourth year. Advise fullest details education, qualifications, experience, age and family status. Write Box P.441, Willing's, 362 Gray's Inn Road, London, W.C.1.

Metal and Mineral Trades

Established 1797 *Members of the London Metal Exchange*

DERBY & CO. LTD.

11-12 ST. SWITHIN'S LANE, E.C.4.

Telephone: MINCING LANE 5272

Specialists in

WOLFRAM, SCHEELITE, CHROME, MOLYBDENITE, TANTALITE, COLUMBITE RUTILE, ILMENITE, BERYL, ZIRCON AND OTHER MINERALS

Smelters and Refiners of

GOLD, SILVER, PLATINUM, PALLADIUM, OSMIUM, IRIDIUM, ETC.

Buyers of

MINERALS, ORES, CONCENTRATES, SWEEPS, LEMELS AND RESIDUES containing GOLD, SILVER, PLATINUM, COPPER, TIN, ZINC, LEAD

Works:
BRIMSDOWN, MIDDLESEX

Also at:
NEW YORK
JOHANNESBURG
SALISBURY (Rhodesia)
ADELAIDE :: SYDNEY

MEMBERS OF THE LONDON METAL EXCHANGE

LEONARD COHEN LTD.

PRECIOUS METALS

ELECTROLYTIC COPPER WIREBARS & CATHODES
TIN — LEAD — ZINC
NON-FERROUS METAL INGOTS
ORES — CONCENTRATES — SCRAP METALS

London Office :
1 HAY HILL, W.1
Telephone : **GROSVENOR 6284**

Works :
PORTH, GLAM.
Telephone: **PORTH 280**

ENTORES, LIMITED
CITY WALL HOUSE, 14-24, FINSBURY STREET, LONDON, E.C.2.

NON-FERROUS METALS
ORES · RESIDUES

Telegrams: *Entores, Phone, London*
Telephone : *MONarch 6050*
Telex No: *London 28455*

GEORGE T. HOLLOWAY Co. LTD.

Metallurgists & Assayers

ORE TESTING, WORKS AND METALLURGICAL RESEARCH LABORATORIES
Atlas Road, Victoria Road, Acton, LONDON, N.W.10

Telephone :
ELGAR 5202

Grams and Cables :
NEOLITHIC LONDON

EVERITT & Co. LTD.
40 CHAPEL STREET
LIVERPOOL
Teleg. Address : Persistent, Liverpool
Phone : 2995 Central

SPECIALITY

MANGANESE PEROXIDE ORES,

We are buyers of :—
WOLFRAM, SCHEELITE, MOLYBDENITE VANADIUM, ILMENITE, RUTILE, ZIRCONIUM and TANTALITE ORES

Suppliers of :—
FERRO-ALLOYS & METALS NON-FERROUS ALLOYS

CONSOLIDATED TIN SMELTERS, LIMITED

ST. SWITHIN'S HOUSE

11/12 ST. SWITHIN'S LANE, LONDON, E.C.4.

TELEPHONE: MANSION HOUSE 2164/2168 TELEGRAMS: CONSMELTER PHONE LONDON

Buyers of all classes of Tin Ores

Proprietors of the following Brands of Tin:

STRAITS

INGOTS — E. S. COY LTD., PENANG
BARS — PENANG PALM
produced by
EASTERN SMELTING CO. LIMITED,
P.O. BOX 280, PENANG,
Federation of Malaya

ENGLISH *(Lamb and Flag)*

INGOTS CORNISH, *AND* — MELLANEAR, *BARS* PENPOLL — *Common and Refined*
MELLANEAR 99·9% Guaranteed
MELLANEAR U.S.A. Grade A
produced by
WILLIAMS, HARVEY & CO. LIMITED
BOOTLE, 20, Lancashire

SOLE SELLING AGENTS:

VIVIAN, YOUNGER & BOND LTD

PRINCES HOUSE, 95 GRESHAM STREET, LONDON, E.C.2.

TELEPHONE: MONARCH 7221-7 · TELEGRAMS: BOND STOCK, LONDON · TELEX: LONDON 8665 · CABLES: BOND, LONDON

METAL TRADERS LTD.

7 GRACECHURCH ST., LONDON, E.C.3

Telegrams: Serolatem, Stock, London — *Telex No:* London 2-2610 — *Telephone:* MANsion House 2544

Buyers and Sellers of
NON-FERROUS METALS
ORES AND MINERALS

New York Associates:
Metal Traders Inc., 67 Wall Street

BROOKSIDE METAL CO. LTD.

(Owned by Metal Traders Ltd.)

HONEYPOT LANE, STANMORE, MIDDX.

Telegrams: Aluminium, Stanmore — *Telephone:* EDGware 5544

Buyers and Sellers of
NON-FERROUS SCRAP METALS

Specialists in
COPPER-BEARING MATERIALS

MINING & CHEMICAL PRODUCTS LIMITED

86 Strand
London WC2
Telephone
Covent Garden
3393

Buyers of Ores, Concentrates and Residues of

BISMUTH
INDIUM
SELENIUM

International Smelters and Buyers of

NON-FERROUS SCRAP METALS AND RESIDUES

TIN
LEAD
WHITEMETAL
SOLDER
GUNMETAL
COPPER

THE EYRE SMELTING CO LTD

Tandem Works, Merton Abbey, London, S.W.19

Phone: Mitcham 2031 — Wire: Eyrsmeltin, Phone, London

we buy
CONCENTRATES
ORES RESIDUES
containing
Base and Precious
METALS

E. M. JACOB & CO. LTD.
Members of the London Metal Exchange
GREENWICH HOUSE, 10-13 NEWGATE ST., LONDON, E.C.1
Telephone: CITy 8401 (7 lines) *Cables:* JACOMETA, LONDON
Telex No: LONDON 2-8655

ZINC SHAVINGS
GRANULATED & POWDERED
NON-FERROUS METALS
"Lead Wool" for Pipe-jointing.
Metallic Packing for Pumps, etc.
THE LEAD WOOL CO., LTD.
SNODLAND KENT
Telephone: Snodland 516/7 Telegrams: "Strength, Phone, Snodland"

Cables: Alreco, London *Telephone:* Trafalgar 5922 8 lines) *Telex:* 2-2462
ALRECO METAL CORPORATION LTD.
(Members of the London Metal Exchange)
ORES :: MINERALS
RESIDUES METAL ALLOYS
SEMI-FINISHED
NON-FERROUS METAL PRODUCTS
1-3 ROBERT STREET, LONDON, W.C.2.
OFFICES AT NEW YORK AND BRUSSELS

J. LOWENSTEIN & CO. LTD.
GREENWICH HOUSE
10/13 NEWGATE STREET, LONDON, E.C.1
Telephone: City 8401 (7 lines)
ORES - METALS - RESIDUES

CHARLES KERRIDGE
● SCRAP LEAD ● BATTERY PLATES
● COPPER CABLES ● NON-FERROUS CONTENTS
FENCEPIECE ROAD, CHIGWELL, ESSEX
Telephones: Hainault 2903 Larkswood 3863 *Telegrams* Metallia East Phone London

CUPELS
MAGNESIA CUPELS and ASSAY MATERIAL "MABOR" BRAND, as supplied to MINTS, MINES and ASSAYERS throughout the World.
MABOR (1944) LIMITED
(Founded 1900)
THE PIONEERS OF MAGNESIA CUPELS
Registered Office: 310 Winchester House, London, E.C.2
Phone: London Wall 5089 *Tel. Address:* Maborlim, London
Agencies: SALEM, INDIA: MONTREAL, CANADA: PERTH, W.A.
Supplies through Agents, the Trade, or direct.

DEERING PRODUCTS LTD.
8 GREAT SMITH STREET, LONDON, S.W.1
ORES - MINERALS - REFRACTORY RAW MATERIALS
Telephone: ABBEY 2681/2 Cables: PRODEERING, LONDON

Heneage Metals Ltd.
FOR *Quality* INGOTS IN
BRASS, GUN METAL & PHOSPHOR BRONZE
224-5 HENEAGE ST · BIRMINGHAM 7 · ASTON CROSS 1177/8

JC
★ MINERALS
★ METALS
★ ORES
of every description
J.C. Gilbert & Co
COLUMBIA HOUSE, ALDWYCH, LONDON, W.C.2.
AGENTS IN MOST COUNTRIES THROUGHOUT THE WORLD

FRANK & SCHULTE
Handelsgesellschaft m.b.H.
(Incorporating Frank & Dieckmann G.m.b.H.)
ALFREDSTRASSE 152 POSTBOX 515
ESSEN, GERMANY
Telegrams: Silizium Teleprinter No. 0857835 Telephone: 44001
ORES MINERALS FERRO-ALLOYS
METAL-ALLOYS METALS
CHEMICALS REFRACTORIES
SELENIUM and ROCK CRYSTAL
Established 1922
OFFERS AND AGENCIES SOLICITED

RHODESIA CHROME MINES LTD

★

THE AFRICAN CHROME MINES LTD

Metallurgical Refractory and Chemical Grades of Chrome Ore

AVAILABLE FOR PROMPT SHIPMENT

Enquiries to:

Head Office: 103 · MOUNT STREET · LONDON · W.1.

Telephone: HYDE PARK 9951 Telegrams: ORECOS LONDON
Telex: ORECOS LONDON 2-3290

MAP OF THE KLERKSDORP FIELD

★ While a mine is at the development stage, it is of vital importance to have a visual picture of its position in relation to the field as a whole. Otherwise the quarterly results published by the companies lose much of their significance.

★ Results reported from adjacent mines often have a direct bearing on the one in which you are interested, which, however, can only become apparent if you have clearly in mind the position of all the properties in relation to one another.

★ *The Technical Map Service*, located in Johannesburg, performs this service most effectively, for the Klerksdorp field. This map and its accompanying statistical handbook show :—

—the exact position of each mine on the field

—where in each property boreholes have been or are being sunk, how far they have gone and what the core recovery has been on reef intersection

—what shafts are being sunk, how far they have gone and what the final depth is expected to be.

Obtainable in London from

The Mining Journal

Price 25s. paper; 35s. linen
(plus 1s. postage)

LONDON METAL AND ORE PRICES, FEB. 6, 1958

METAL PRICES

Aluminium, 99.5%, £197 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £190 per ton
Crude (70%) £190 per ton
Ore (60%) basis 19s. 6d./20s. 6d. nom. per unit, c.i.f.

Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 10s. 0d. lb.
Cerium (99% net), £13 18s. lb. delivered U.K.
Chromium, Cr. 99% 7s. 2d. lb.
Cobalt, 16s. lb.
Germanium, 99.99%, Ge. kilo lots 3s. 4d. per gram
Gold, 249s. 2½d.
Iridium, £26 oz. nom.
Lanthanum (98/99%) 15s. per gram.
Manganese Metal (96%-98%) £310
Magnesium, 2s. 5½d. lb.
Nickel, 99.5% (home trade) £600 per ton
Osmium, £25 oz. nom.
Osmiridium, nom.
Palladium, £7 10s. oz.
Platinum U.K. and Empire Refined £27/10 oz.
Imported £25 0s./£26 0s.
Quicksilver, £73 0s. ex-warehouse
Rhodium, £40/£42 oz.
Ruthenium, £15/£18 oz. nom.
Selenium, 53s. 6d. per lb.
Silver, 76½d. f. oz. spot and 76d. f'd.
Tellurium, 15s. 16s. lb.

ORES AND OXIDES

Bismuth	35% 5s. 0d. lb. c.i.f.
	20% 3s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable) 48%	£17 5s. 0d. per ton c.i.f.
,, Hard Lumpy 45%	£18 0s. 0d. per ton c.i.f.
,, Refractory 40%	£12 5s. 0d. per ton c.i.f.
,, Smalls 44%	£16 5s. 0d. per ton c.i.f.
Baluchistan 48%	£12 0s. 0d. per ton f.o.b.
Columbite, 65% combined oxides, high grade	nom.
Fluorspar—	
Acid Grade, Flotated Material	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF_2)	156s. 0d. ex works
Lithium Ore—	
Petalite min. 3½% Li_2O	47s. 6d./52s. 6d. per unit f.o.b. Beira
Lepidolite min. 3½% Li_2O	47s. 6d./52s. 6d. per unit f.o.b. Beira
Amblygonite basis 7% Li_2O	£26 5s. per ton f.o.b. Beira
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite Raw (ground)	£21 0s./£22 0s. d/d
Manganese Ore Indian—	
Europe (46%-48%) basis 77s. 6d. freight	nom.
Manganese Ore (43%-45%)	nom.
Manganese Ore (38%-40%)	nom.
Molybdenite (85% basis)	8s. 5d. per lb. (f.o.b.
Titanium Ore—	
Rutile 95/97% TiO_2 (prompt delivery)	£41/£42 per ton c.i.f. Aust'n.
Ilmenite 52/54% TiO_2	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%)	95s. 0d./100s. 0d. per unit c.i.f.
Vanadium—	
Fused oxide 90-95% V_2O_5	£10 per unit c.i.f.
Zircon Sand (Australian) (65-66% ZrO_2)	£16 per ton c.i.f.

Underground or Surface
Whatever the Load
Whatever the Distance

thousands of trouble-free tons with

CABLE BELT
ROPE DRIVEN
CONVEYORS

Already installed and to be installed in Great Britain, Canada, France, South Africa, Australia, Japan and the Belgian Congo

CABLE BELT
ROPE DRIVEN CONVEYORS

LONGMAN INDUSTRIAL ESTATE,
INVERNESS, SCOTLAND

Telephone: Inverness 2761-2 Telegrams: Cablebelt, Inverness

Published by The Mining Journal Ltd., 15 Wilson Street, Moorgate, London, E.C.2, and printed by Washburn & Sons Ltd., Queens Road, Southend-on-Sea, Essex. Registered as a Newspaper.